EA-87-02

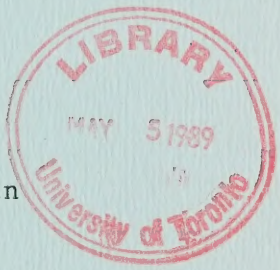
Ontario

ENVIRONMENTAL ASSESSMENT BOARD

VOLUME: 92

DATE: Monday, April 24th, 1989

BEFORE: M.I. JEFFERY, Q.C., Chairman
E. MARTEL, Member
A. KOVEN, Member



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HEARING ON THE PROPOSAL BY THE MINISTRY OF NATURAL RESOURCES FOR A CLASS ENVIRONMENTAL ASSESSMENT FOR TIMBER MANAGEMENT ON CROWN LANDS IN ONTARIO

IN THE MATTER of the Environmental Assessment Act, R.S.O. 1980, c.140;

- and -

IN THE MATTER of the Class Environmental Assessment for Timber Management on Crown Lands in Ontario;

- and -

IN THE MATTER of an Order-in-Council (O.C. 2449/87) authorizing the Environmental Assessment Board to administer a funding program, in connection with the environmental assessment hearing with respect to the Timber Management Class Environmental Assessment, and to distribute funds to qualified participants.

Hearing held at the Ramada Prince Arthur Hotel, 17 North Cumberland St., Thunder Bay, Ontario, on Monday, April 24th, 1989, commencing at 1:00 p.m.

VOLUME 92

BEFORE:

MR. MICHAEL I. JEFFERY, Q.C.	Chairman
MR. ELIE MARTEL	Member
MRS. ANNE KOVEN	Member

A P P E A R A N C E S

MR. V. FREIDIN, Q.C.) MS. C. BLASTORAH) MS. K. MURPHY) MS. Y. HERSCHER)	MINISTRY OF NATURAL RESOURCES
MR. B. CAMPBELL) MS. J. SEABORN)	MINISTRY OF ENVIRONMENT
MR. R. TUER, Q.C.) MR. R. COSMAN) MS. E. CRONK) MR. P.R. CASSIDY)	ONTARIO FOREST INDUSTRY ASSOCIATION and ONTARIO LUMBER MANUFACTURERS' ASSOCIATION
MR. J. WILLIAMS, Q.C. MR. B.R. ARMSTRONG MR. G.L. FIRMAN	ONTARIO FEDERATION OF ANGLERS & HUNTERS
MR. D. HUNTER	NISHNAWBE-ASKI NATION and WINDIGO TRIBAL COUNCIL
MR. J.F. CASTRILLI) MS. M. SWENARCHUK) MR. R. LINDGREN)	FORESTS FOR TOMORROW
MR. P. SANFORD) MS. L. NICHOLLS) MR. D. WOOD)	KIMBERLY-CLARK OF CANADA LIMITED and SPRUCE FALLS POWER & PAPER COMPANY
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MR. Y. GERVAIS) MR. R. BARNES)	ONTARIO TRAPPERS ASSOCIATION
MR. R. EDWARDS) MR. B. McKERCHER)	NORTHERN ONTARIO TOURIST OUTFITTERS ASSOCIATION
MR. L. GREENSPOON) MS. B. LLOYD)	NORTHWATCH

APPEARANCES: (Cont'd)

MR. J.W. ERICKSON, Q.C.) MR. B. BABCOCK)	RED LAKE-EAR FALLS JOINT MUNICIPAL COMMITTEE
MR. D. SCOTT) MR. J.S. TAYLOR)	NORTHWESTERN ONTARIO ASSOCIATED CHAMBERS OF COMMERCE
MR. J.W. HARBELL) MR. S.M. MAKUCH)	GREAT LAKES FOREST
MR. J. EBBS	ONTARIO PROFESSIONAL FORESTERS ASSOCIATION
MR. D. KING	VENTURE TOURISM ASSOCIATION OF ONTARIO
MR. D. COLBORNE	GRAND COUNCIL TREATY #3
MR. R. REILLY	ONTARIO METIS & ABORIGINAL ASSOCIATION
MR. H. GRAHAM	CANADIAN INSTITUTE OF FORESTRY (CENTRAL ONTARIO SECTION)
MR. G.J. KINLIN	DEPARTMENT OF JUSTICE
MR. S.J. STEPINAC	MINISTRY OF NORTHERN DEVELOPMENT & MINES
MR. M. COATES	ONTARIO FORESTRY ASSOCIATION
MR. P. ODORIZZI	BEARDMORE-LAKE NIPIGON WATCHDOG SOCIETY
MR. R.L. AXFORD	CANADIAN ASSOCIATION OF SINGLE INDUSTRY TOWNS
MR. M.O. EDWARDS	FORT FRANCES CHAMBER OF COMMERCE
MR. P.D. McCUTCHEON	GEORGE NIXON

APPEARANCES: (Cont'd)

MR. C. BRUNETTA	NORTHWESTERN ONTARIO TOURISM ASSOCIATION

I N D E X O F P R O C E E D I N G S

INDEX OF EXHIBITS

---Upon commencing at 1:05 p.m.

THE CHAIRMAN: Good afternoon. Please be seated everyone.

Well, ladies and gentlemen, before we commence, are there any procedural matters to deal with?

Mr. Freidin?

MR. FREIDIN: It's not really a procedural matter but a matter of information for the Board, Mr. Chairman.

You will recall at the end of last week Mr. Clark - well, actually it was at the end of his examination-in-chief - gave evidence with respect to the proposal to ferry logs across Lac Seul. That arrangement involved the Lac Seul Indian Reserve, as you are aware, and an arrangement between a timber company and the Lac Seul Band for the construction of a road on the reserve, the proposal includes a road on the reserve.

We were advised by the Department of Justice that they are currently reviewing that proposal and that this review must be undertaken because of the responsibilities of the federal government for administration of the Indian Act.

I am just advising you of that and when

their review is completed, the Department of Justice will advise us of the outcome and then we will, of course, advise the Board so that all of the pertinent details about this example will be provided to the Board.

THE CHAIRMAN: Thank you.

Mr. Hanna?

MR. HANNA: Good afternoon, Mr. Chairman. I would like to start out my questions with Dr. Euler. This afternoon I will be referring to Exhibits 308, 310 and I have asked Mr. Mander if he'll give us 474 which I believe is up on the board.

DAVID LOWELL EULER,
PETER PHILLIP HYNARD,
JOHN TRUMAN ALLIN,
RICHARD BRUCE GREENWOOD,
CAMERON D. CLARK,
GORDON C. OLDFORD, Resumed

CONTINUED CROSS-EXAMINATION BY MR. HANNA:

Q. Dr. Euler, I believe in your resume in the witness statement you make reference to experience in environmental assessment. Can you expand on exactly what experience you have had in that respect?

DR. EULER: A. The experience I have had in environmental assessment is this experience here primarily, the Forest Timber Management Environmental

Assessment that we are undergoing right now.

Q. It's on page 9, I believe.

A. Of the witness statement? Volume I?

Q. Volume I.

A. Yes. I was referring to the work that we are undergoing now. I have been working on this now for several years in one form or another.

Q. Now, under that heading it says: Has been involved in two Ministry committees, and it says it's writing environmental impact assessment of wildlife management and forest management.

I don't want to go back through what forest management and timber management and that thing, but I haven't heard wildlife management EA mentioned yet and I am just wondering what that makes reference to?

A. Well, it only refers to that portion of wildlife management that occurs in the context of forest management.

THE CHAIRMAN: Of timber management?

DR. EULER: Timber management, yes, Mr. Chairman, sorry.

MR. HANNA: Q. And the two committees, what were the two committees?

DR. EULER: A. Well, they were

committees that were formed several years ago that began the first drafts of what eventually emerged as our statement of the undertaking.

Q. Have you had any training in environmental assessment?

A. No, I have not.

Q. You partook in the ESSA effects monitoring program?

A. Yes, I did.

Q. I believe you are also a major author, if not the author, of the Moose Management Guidelines, Exhibit 310?

A. The Habitat Management Guidelines?

Q. Yes.

A. Yes, I had a major role in developing those, that's right.

Q. And the Deer Habitat Guidelines likewise?

A. Yes.

Q. Another matter that's made reference there in your resume, you have been involved in wetland evaluation; is that correct?

A. Yes, that's correct.

Q. And would it be fair to say that you were a key figure in the Ministry with respect to the

wetland evaluation system being developed?

A. Yes. Yes, I was.

Q. Did you write parts of the Class Environmental Assessment?

A. Yes, I did.

Q. Could you just give me the parts or has that -- I believe, I apologize here to the Board, I haven't looked specifically at the interrogatory by NAN. They sometimes ask that question.

Has that been answered in an interrogatory; do you know?

A. I have not answered that question.

Q. Okay. Would you mind answering it now?

A. Well, in general I wrote the sections dealing with terrestrial effects.

Q. Is there a reference there that you could give us with respect to that?

A. Well, see, those would have -- they occur on a number of different pages. I mean, if you want, we can go through each of those.

Q. No, that's not necessary. Is it primarily in Part I, is that what you are referring to?

A. Yes. They are primarily in Part I, yes.

Q. That's adequate. Now, I believe you were here for the cross-examination of Panel 8 or parts thereof?

A. Yes, I was.

Q. And I believe during that there was discussion of what were considered possible steps in environmental assessment.

A. Mm-hmm.

Q. And I believe at that time there were - Mr. Chairman, you may correct me here - I believe it is five or in that order that we talked about.

I would like just to go through them with you and just get your view on them and make sure that you agree with those steps.

MR. FREIDIN: Mr. Chairman, if he was going to ask him about the five steps in the environmental assessment, he indicated his experience in environmental assessment and his expertise doesn't go beyond that. I don't know if it will be helpful to go through the evidence of Panel No. 8.

THE CHAIRMAN: Well, Mr. Freidin, I think what he is asking for here though is whether he is in agreement with the five steps enunicated by the witnesses in Panel 8.

I think it is a fair question to say -- to ask you, from your perspective, whether or not you agree that an EA in your mind should be conducted in accordance with those five steps.

Now, whether or not his agreement or his disagreement is helpful in terms of what steps should be considered in formulating an EA I think is ultimately up for the Board to decide.

MR. HANNA: Mr. Chairman, just so I can give you the context in asking those questions. I appreciate fully what you are saying and I have no intention of trying to have this witness say that those steps are appropriate.

I am simply trying to get a context within which his evidence is presented and that's the reason why I asked the question. I appreciate fully what you are saying in that respect.

Q. Dr. Euler, maybe I can list you out the steps that I see and you can perhaps comment on them. That's probably the fastest way to go about this.

The first that I will say is the selection of decision criteria?

DR. EULER: A. Yes.

Q. The second is information gathering?

A. Yes.

Q. The third is impact prediction?

A. Yes.

Q. The fourth is impact mitigation? I use that word, sir, I am not sure -- unfortunately my vocabulary in terms of environmental assessment is perhaps somewhat different than the Ministry's.

Can we use the word mitigation in this context to mean prevent - perhaps Mr. Clark can help me - prevent, minimize -- I forgot all the other terms, but I think that whole broad array of things that he has made reference to.

A. Okay.

Q. Evaluation?

A. Yes.

Q. Iteration?

A. Yes.

Q. And finally making a tradeoff decision, a final decision?

A. Okay.

Q. Now, before we go on, have you got a basic understanding of those steps? I just want to make sure you understand what I mean by those steps.

A. I think so, yes.

Q. Okay. Now, the reason I am asking

you this, I am trying to put in context the evidence you presented here and I just want to see which one of these steps your evidence in your mind relates to.

A. Okay.

Q. And so I would ask you: Of those seven steps which of these -- how does your evidence relate to them?

A. Well, my evidence I think would relate to information gathering, impact prediction, impact mitigation, evaluation. Those four certainly.

Q. Okay, thank you. Now, with respect to information gathering, has your evidence provided us with an indication of, if you will, the minimum information to be required to prepare a timber management plan with respect to wildlife?

A. Has it given the minimum -- I am not sure...

Q. Let me rephrase the question.

A. Yes.

Q. I am asking: In your view, does the evidence that you have brought forward provide direction as to the minimum amount of information that's required to prepare a timber management plan with respect to wildlife?

A. Yes, I think so.

Q. Where would I look to see that in your evidence?

A. Well now, see when you say your evidence, I'm assuming you mean everything. Is that -- I'm assuming you mean in the Class Environmental Assessment, the green volumes and in the verbal evidence. So it's all through, all through here. I don't know how to be more specific.

Q. Well, we are going to talk about the red-shouldered hawk later on and it has been talked about quite a bit at this hearing.

What would be the minimum amount of information that would have to be collected with respect to the red-shouldered hawk before a timber management plan should be prepared?

A. Well, it would be very nice to know if there were any red-shouldered hawks in your planning area. That would be the minimum information.

Q. Okay. Can we move on then to impact prediction?

A. Okay.

Q. And you have indicated that your evidence does provide us with some direction in terms of impact prediction?

A. Right.

Q. I ask the same question and I realize it's diffuse throughout your evidence, but is there any specific point - and maybe we could take moose - where you would say: There is how we do impact prediction in terms of moose?

A. I am really confused--

Q. Okay.

A. --about what you are asking me because -- you see, it seems to me that that's just a little different question. If you say: How do we do impact prediction about moose, versus: Do we have enough information to make impact predictions, or whether I made impact predictions.

Q. Okay. Well, let me clarify it, I think it is fair. There is no point going here if you don't understand where I am going now.

The question I am asking is: We first of all collect information so we get an understanding in terms of the resource that is out there and, in this case, with respect to wildlife?

A. Now, when you say -- you mean the Ministry collects information? Or when you say 'we', who do you mean?

Q. I believe -- perhaps I'm using we in the sense of the public in general and the Ministry

being a representative of the public, but I was thinking of the Ministry, yes.

A. Okay. The Ministry collects information about what?

Q. The wildlife components that you are providing evidence on.

A. Okay. Yes, that's right.

Q. Now, you collect that information, that's your first -- first of all, you have got to decide which species and which elements are important. That's what was meant by the first step, decide what are we going to go out there and measure; right?

What are we going to collect information on, even if we don't go out in the field and do it, what are we going to consider?

A. See, I am really confused about whether you are talking about what I did for the EA hearing, or what the Ministry does in its management activity on a daily basis.

MR. HANNA: Mr. Chairman, maybe I can ask for your help here, but I'm...

THE CHAIRMAN: Well, it seems to me from the thrust of your questions, Mr. Hanna, that you are trying to ascertain what steps does the Ministry go through in order to prepare a timber management plan

from the perspective of protecting wildlife.

Is that basically your question?

MR. HANNA: That's certainly the major part of it. I guess what I am looking at is --

THE CHAIRMAN: And so if that is the case, if that is part of the question I think, Dr. Euler, you are looking at what - taking these five or six points - what information does the Ministry have and how does it go about collecting it on a day-to-day basis.

MR. HANNA: Mr. Chairman, I really don't want to go into that because we have heard that quite a bit.

THE CHAIRMAN: Okay.

MR. HANNA: I guess that isn't the point of my question.

THE CHAIRMAN: Well, is the point: Is he complying with the Act in terms of preparing the Class Environmental Assessment?

I mean, you have to I think narrow it down so that Dr. Euler can address his mind to answering that question, because there may be a different level of information that's required in order to meet the statutory requirements of a Class EA and what managers in the field would do in order to prepare

a timber management plan. I think you have to be more specific than you have been.

MR. HANNA: Okay. I appreciate and that's why I am sort of groping with just trying to deal with this in that sort of a way.

THE CHAIRMAN: Well, you can imagine his problem in trying to grope with it if you are groping with the question. He has got even more groping with the answer.

MR. HANNA: I understand the question, but I am trying to have a way to put it to him that -- and I appreciate the problem the witness is having in that respect.

I guess where I am coming from is this and that is that the Class Environmental Assessment is going to set out a planning process whereby these decisions are being made. We have here a panel dealing with harvesting impacts and I am trying to ascertain what information is used in terms of harvesting and what information is required, a minimum requirement, one of the things past and we have gone back through -- we've been through this with the Board before.

THE CHAIRMAN: In order that the Ministry at some stage could prepare a plan or a company could prepare a plan on a particular unit?

MR. HANNA: Yes. And in this particular case dealing with harvesting, and so that was what I was coming at. And so what information do we need in terms of harvesting with respect to wildlife and then how do we go about using that information to make predictions.

So that's where I am coming from, but it is a generic question and I appreciate the difficulty the witness is having because I am not talking about, you know, one of the 309 vertebrate species we have out there or whatever. If it is easier, I could talk about just moose or a particular species.

DR. EULER: That would be easier. Could we concentrate on a species--

MR. HANNA: Okay.

DR. EULER: --and let's use moose then, if you don't mind--

MR. HANNA: No, no problem.

DR. EULER: --and let's see what we can do.

THE CHAIRMAN: Well, doesn't this get back as well, Mr. Hanna, onto the featured species approach that the Ministry in fact uses?

In other words, they are not going to go out and collect everything on every single specie, they

are going to, I gather from what we have heard, take one of the featured specie, use that as the indicator, collect certain information on that and that's how they would go about protecting other wildlife vertebrate species in the forest in terms of timber management.

DR. EULER: That's right.

MR. HANNA: I am not challenging the featured species in any way, sir. That's not the intent of my question.

THE CHAIRMAN: Okay. But what I am saying is: We have had a lot of evidence on what kind of information they go out and gather with respect to the featured species.

And I think in answering the question, Dr. Euler, I don't think we want a complete repeat of everything we have heard on the featured species.

MR. HANNA: I think, if you will, the operative word in the question, Mr. Chairman, was this question of minimum. I am trying to look at this and say what -- and quite honestly, I am looking at it in terms of terms and conditions; in other words, what types of conditions should be put on the Ministry in terms of minimum amount of information that they might be required to collect in terms of harvesting impacts on the featured species. That's where I'm coming from.

THE CHAIRMAN: Okay. Well, why don't we take an example of a featured specie and try and answer the question in terms of the minimum amount of information that you would feel comfortable with about gathering and requiring as a wildlife manager.

DR. EULER: Okay.

MR. HANNA: That's exactly -- thank you, Dr. Chairman, you did help me.

DR. EULER: So I am ready to answer now.

THE CHAIRMAN: Yes, if you can, and don't ask me to repeat the question.

DR. EULER: We have adopted the featured species approach and in the case of moose then the district person who is part of the planning team should know as a minimum how many moose are out there and he should have as a minimum a basic idea of the plant communities that are there.

MR. HANNA: Q. Okay. Now, the next step is impact prediction. With moose, what tools do we have or how does the Ministry go about the impact prediction exercise in terms of alterations in the habitat and its effect on the featured species?

DR. EULER: A. Well, the district person knows what good moose habitat is and he compares the anticipated result following the timber harvest with

this ideal that we described and he makes a judgment about where he is with respect to that ideal.

Q. So what you are saying is it's done, if you will, mentally?

A. Often it's done mentally, but also sometimes people have reduced it to paper as well. So it's done both ways.

Q. Could you give me an example where it has been done the other way, on paper?

A. Well, I am thinking of a plan that I saw from Red Lake where the district person put on paper the places in a management unit, in this case I think it was management unit 3, where the person put on paper what was there at the present time in terms of soil and plant communities and made some very broad decisions about where the moose were likely to be and where other things are likely to be and that helped direct the management effort.

MR. HANNA: Mr. Chairman, as to procedures, this is the first time I have heard of this. Should I ask the witness, can I get a copy of that. I am just not sure. I am asking really what I should do. I haven't seen it, so I'm really at a loss, I can't go any further on the question.

THE CHAIRMAN: Is that kind of document

available?

DR. EULER: Yes, it is available.

THE CHAIRMAN: Is it readily accessible?

DR. EULER: Yes.

THE CHAIRMAN: I think you can ask for it, and we will ask Mr. Freidin --

MR. FREIDIN: And you shall receive.

MR. HANNA: Thank you very much, Mr. Freidin.

Q. Okay. So then we move on to impact pre -- mitigation, excuse me, and mitigation applies the four components that Mr. Clark has given in his definitions.

Would you say that the mitigation is dealt with through the guidelines?

DR. EULER: A. Yes, mm-hmm. The guidelines are a very useful and important tool of the mitigation process, yes.

Q. Are there other tools?

A. Well, I think perhaps other pieces of scientific literature that are available to the planning team would be helpful.

There is no substitute for a site visit to actually see what is there, and I know our people get out on site as often as they can. So those are all

things that are used in that process.

Q. And the formalized, how should I say, expression of that would be the guidelines?

A. The formalized expression of what?

Q. Of your impact mitigation procedure.

A. We wouldn't use that term, but in effect that I think is what happens, yes, although if you went out and asked our district people and you used the particular term that you are using, they probably wouldn't know what you are talking about.

Q. That is the problem with jargon, it is very hard to get a lot of people to understand this.

A. But I think that is in fact what they do.

THE CHAIRMAN: But, Dr. Euler, wouldn't the actual prescriptions end up being the formalization of the mitigation, in effect?

DR. EULER: The prescriptions in the timber management plan. Well, probably they would be, yes. Yes.

THE CHAIRMAN: You would be applying the guidelines but end up with prescriptions?

DR. EULER: Yes, that's correct.

MR. HANNA: Perhaps the way -- Mr. Chairman, I look at that as being the outcome of the

mitigation, the procedures leading up to that decision.

In other words, the guidelines have mitigation built into them -- or I am sorry, the prescriptions have mitigation built into them; it was the procedures that decide and that's really where I was coming from.

THE CHAIRMAN: Okay.

MR. HANNA: Q. Okay. And the last step that I want to deal with here is evaluation.

DR. EULER: A. Yes.

Q. We talked about moose and black flies the last time we were around. I just -- one reason I make reference to that is that evaluation implies making -- I should say weighing; in other words, looking at social values and deciding on importance and that sort of thing. Do you understand that to be evaluation?

A. No, I wouldn't say that's evaluation. I would say that's the process of setting objectives and evaluation is trying to determine how close you are to meeting your objectives.

Q. Okay. So that what you are saying is that that process, the trading off of the black flies and the moose, if you will, is done when you set your objectives?

A. Yes, yes.

Q. Okay. Dr. Euler, do you recall the last time that we were here we were talking about this issue of determining the acceptability of impacts?

A. Yes.

Q. And I believe that you indicated that the measure of acceptibility that you would propose is to look at any given impact and compare that to the corresponding objective?

A. Right.

Q. And that's established by your Ministry. And if the impact fell within that range, the objective, wasn't violating your objective, that the impact would be deemed acceptable. Is that a fair --

A. Yes, I think so.

Q. I would like to see how that actually operates if we could. I would like to look again at moose.

A. Okay.

Q. If we were today to evaluate the impact of harvesting on moose we would look at the current moose targets and compare them against the current population?

A. Yes. That would -- yes, recognizing

that other things affect moose populations besides habitat, but that would be an important part of the process, yes.

See, we set a moose objective. Well, there are two tools to reach that objective; one is the habitat tool and one is the hunting tool.

Q. We are going to get into your six guns in a minute.

A. Okay, good.

Q. I just want to just try and deal with this acceptability issue first, if we could.

A. Yeah, okay.

Q. Now, I wasn't sure whether that was a clear yes or no to that question, that you would look at the current population compared against the current target--

A. Yes.

Q. --and, on that basis, make a decision on acceptibility?

A. Yes.

MR. FREIDIN: I think his answer -- well, Mr. Chairman, the answer was: Yes, recognizing that there are other things that affect -- other than habitat that affect moose.

MR. HANNA: I'm not quite sure of the

point of that interjection, Mr. Chairman.

MR. FREIDIN: The point of interjection is to get the answer accurately on the record, and I suppose it is my indirect way to ask that if you are going to ask -- I am not going to get into it.

THE CHAIRMAN: Okay. I think, Dr. Euler, if you are qualifying an answer--

DR. EULER: Yes.

THE CHAIRMAN: -and you previously qualified it and then you are asked again if that's your answer, is it a yes or a no, you have to either be prepared to go with a yes or no period, or repeat the qualification.

DR. EULER: Okay.

THE CHAIRMAN: I think Mr. Freidin's point is taken to the extent that we want on the record whether or not just those two elements form the acceptability criteria, or whether it is those two elements plus anything else.

And he answered it one way as if to imply there are other things, and he answered it the second time as if to imply it is just those two.

DR. EULER: Okay.

THE CHAIRMAN: So which way do you want to go?

DR. EULER: Okay. I would like to repeat what I said first. Yes, that's how we evaluate, but we have to recognize that other things may influence the moose target other than habitat. So it is part of the evaluation, it is not all of the evaluation.

THE CHAIRMAN: But once you have your target set--

DR. EULER: Yes.

THE CHAIRMAN: --even though other things went into formulating the target--

DR. EULER: Yes.

THE CHAIRMAN: --you just look at acceptability in terms of whether you are meeting that target in terms of the present population, whether you are on track in meeting a target?

DR. EULER: Well, yes, that's true. Yes, that's right. See, in the very narrow sense of the question then I can say yes and leave it at that, if we can just see it in the narrow sense.

I guess what I am concerned about is that as we talk about these things it is easy to forget that we are dealing with dynamic systems with all kinds of influences on them and nothing out there is simple. And so it is very hard to reduce these to yes and no answers and yet technically I suppose, in a very narrow

sense, one could just say yes.

THE CHAIRMAN: Well, to use a hypothetical example: If you ascertained that there was a particular disease out there that was going to strike moose--

DR. EULER: Yes.

THE CHAIRMAN: --because it's elsewhere in the moose population in say other countries.

DR. EULER: Mm-hmm.

THE CHAIRMAN: Notwithstanding your meeting the population targets at the present time, would that influence the way you might manage moose?

DR. EULER: Oh yes, and it might influence your habitat decision some way, sure.

You might be able to say: Well, we have got this horrible disease so, therefore, there is no point in putting a too terribly hard restriction on the timber company when they are not going to live there anyway because we have got this horrible disease. So it is just a dynamic system with all kinds of hooks in there at any point to reach in and touch.

MR. FREIDIN: Mr. Chairman, just so you know where I am coming from, I think there is a distinction perhaps in the question that says: Are you meeting your objective, yes, and asking is why the

cause for not meeting the objective, that is another question, and I see we are getting into that level here too.

MR. HANNA: Mr. Chairman, that was the reason I reiterated the question because I didn't want to get muddled up with that other part yet. What I really want to deal with is this question of acceptability of impact and recognizing what Dr. Euler has said that there is a multitude of factors that come to bear on the population and whatever, we will get into those, but I just wanted to deal with this business of how to decide whether an impact - and I am talking here strictly in terms of an impact of harvesting in wildlife - is acceptable.

And I have heard in the evidence when we were here last that that was basically done by looking at whether or not the objectives are being achieved.

And think I Dr. Euler's words: Judge us by --

DR. EULER: How we attain our objectives, that is right.

THE CHAIRMAN: Okay.

DR. EULER: And that's exactly right. I stay by that.

THE CHAIRMAN: Let's leave it at that

then, and you can go on.

MR. HANNA: Q. If we can talk then about this question of acceptability. Does that rule of acceptability apply to all harvesting impacts on wildlife?

DR. EULER: A. It's really hard to answer such a--

Q. Okay.

A. --question that is so pervasive. I mean --

Q. Okay. All right, the question -- here's where I am coming from Dr. Euler. In Mr. Freidin's opening statements to this panel he said that the Ministry's position is that harvesting -- Mr. Freidin, perhaps you can give me the exact words - no adverse -- no significant adverse impacts, I believe was the term.

A. On wildlife.

Q. No, I believe that was a blanket statement that was made.

A. Oh, okay.

Q. Pertaining to harvesting. And I am ow trying to deal with wildlife solely.

A. Okay.

Q. And I am trying to look and say:

Okay, to decide that there is no significant impacts and the context of significance is that there may be an impact but it's acceptable?

A. Right. That's right.

Q. And I am trying to get around to this question of what is acceptable and how the Ministry came to the conclusion that the impacts were acceptable.

A. Okay. Well, the way we come to that conclusion is: How are we doing on attaining our objectives. If we are doing a very bad job, then it's unacceptable. If we are attaining the objectives, then it's acceptable.

Q. And those objectives are population objectives?

A. Sometimes yes; other times no.

Q. Can you give me the other times, please, with respect to moose? Let's try and keep this limited and try to narrow it as much as we can just with respect to moose.

A. Well, for the case of moose they are virtually always a population target. I don't know of any moose objective that is not a population target.

Q. Fine. We can talk about the other -- we are going to talk about non-game species.

A. Okay.

Q. So you can talk about those things.

A. But in moose, yes, they are all population targets. Although we do have, in addition to the population targets, harvest targets and recreational viewing opportunities. So for moose we have those three kinds of targets.

Q. Thank you. The non-game species - perhaps I will even make it more specific than that - the featured species, the non-game featured species which has received quite a bit of discussion at the hearing. Do you have population objectives for those?

A. Not that I know of. See, we don't have very many non-game featured species. Bald eagles, red-shouldered hawks, those are the two that come to my mind right at the moment.

Q. I believe you have spoke about pileated woodpeckers and goshawks--

A. Yes, that's a --

Q. --and a variety of other species also.

A. Right. Those are -- yes, and all of those fall in the category we would call locally featured. And to the best of my knowledge there are no population targets for any of our locally featured

species.

Q. So then would it be fair to say that for those, if you will non-game species, that the objective is I believe what we have termed the viable sustainable population objective..

A. The viable population, yes. I don't -- yes, the viable population objective.

Q. I may have put sustainable in there.

A. Yeah.

Q. I'm sorry for inserting that. Do you have any problem with the sustainable being inserted in there?

A. I would prefer that it not be inserted in this context because sustainable usually refers to sustainable yield and it's usually in the context of a game species. I think viable population is enough.

Q. Right. Now, as I understand your evidence, you have concluded that the impacts of harvesting on wildlife and, in particular moose, given the current trends in the moose population, are acceptable; is that correct?

A. Yes, that's correct.

THE CHAIRMAN: Go ahead.

MR. HANNA: Q. Now, I believe, Dr.

Euler, that you'll agree with me that this particular EA -- this Class EA is concerning itself only with the habitat component of the moose and we are not here talking about hunting seasons--

A. Right.

Q. --yields and that sort of thing?

A. That's right.

Q. And I believe we have just gone through - and I don't need to reiterate it - but there are a number of factors that control the moose population in addition to habitat?

A. That's right.

Q. Now, I believe in your cross-examination with Ms. Swenarchuk you actually listed I believe four variables that control moose populations; is that correct?

A. Probably. I don't remember.

Q. I don't have the exact reference also so I am a bit at sea, but I will try my memory on it. There was --

MR. HANNA: Well, Mr. Freidin, if you could --

DR. EULER: It would involve things like predation, disease, hunting, weather climate.

MR. HANNA: Q. Yeah, I think that covers

it.

DR. EULER: A. Those things all come to mind. There is four or five depending how you organize them.

Q. Okay. And you would agree some of these variables the manager can control and other ones he can't?

A. That's correct.

Q. Now, weather would be one of those ones he obviously can't control?

A. That's correct.

Q. But he could take steps to mitigate the impact of weather; is that correct?

A. Yes, that's correct.

Q. And what would be the types of steps that he would take to mitigate the effects of weather?

A. Well, leaving mature conifer for example to provide moose with shelter against the extremes of conditions experienced in the wintertime.

Q. So basically habitat quality; you improve the habitat quality and the population is more resilient?

A. Well, it's certainly true that animals do better in better quality habitat, yes, without question.

Q. I am just thinking if that answered the question.

A. Well, sometimes we -- sometimes timber harvest improves the quality of habitat and sometimes it doesn't, and it only makes sense when you put it in the context of the objective we are working towards, because timber harvest cannot always improve the quality of moose habitat in a particular place. Other times it can and the key point is to see how your population as a whole is doing so that the net change is beneficial.

Q. Okay. Would you agree -- I believe the population target is 160,000 animals in 2000?

A. Yes, that's correct.

Q. Is it possible to reach the 160,000 solely with population management -- the population management six gun?

A. I don't think so. I think not. I think we need the habitat conditions as well.

Q. I was not suggesting that we reach 160,000 without habitat.

A. Well, we need some good -- we need good moose habitat in order to reach the target of 160,000 moose and sustain them, because that is -- also part of this target is: You get to that level, but you

want to sustain it at 160,000 as well and to do that we need good habitat and I don't think we can do it with the hunting six gun alone.

Q. Do you have any idea how close we can get without the habitat six gun?

A. No, not really. It's such a generalization and it's such -- it's an opinion, it's a professional opinion and that is all it is. And I don't want to speculate any more, that's speculation enough.

Q. My concern here is this, Dr. Euler: We have all these factors affecting moose population which you have addressed, and this Board is concerned with just one of those factors which is the habitat component that relates to timber management.

A. That's right.

Q. And if we were to use the objective as the measure of acceptability and we could still parallel those objectives - at least to a large extent perhaps we have done that today - without the habitat component; in other words, simply through harvest controls or whatever, we could go forward and decide on acceptability of an impact without being certain of what we are really trying to deal with is preservation of the habitat has actually been carried through.

Is that possible?

A. Well, it's certainly possible. It is a very remote possibility and it is preceded with a whole bunch of conditional statements like if. And in reality -- in the real world, it isn't very likely to happen.

And you can construct this kind of hypothetical: Is it possible for such and such to happen, and I have to say: Well, yes, it is possible, but it is very unlikely.

THE CHAIRMAN: Where does that get you, Mr. Hanna? I mean, you can prohibit hunting period.

DR. EULER: That's right.

THE CHAIRMAN: Have poor habitat out there and yet the population would probably increase.

MR. HANNA: That's precisely my point.

THE CHAIRMAN: But by the same token you could increase the hunting or the harvest and also improve the habitat.

DR. EULER: Mm-hmm, that is a choice that we have.

THE CHAIRMAN: And then you might end up with the population increasing as well.

MR. HANNA: Or a major decrease.

THE CHAIRMAN: Or a major decrease but, I

mean, it's all speculation as to which way you go.

MR. HANNA: Absolutely, sir. I agree with you wholeheartedly there. Well, I guess what the point that I am looking at is that if we use this as our measure of acceptability, the population itself, when we are really concerned about the habitat --

THE CHAIRMAN: But why aren't you concerned about the population?

MR. HANNA: Oh, we are, sir, but there are all these other factors that are outside the control of this particular application and so this application really is dealing with the habitat component.

So I am looking at what is acceptable -- where I am coming from is trying to say: What's an acceptable impact in terms of wildlife from harvesting, and the Ministry has said to me: Well, use our objective. But if I use that objective as the measure and yet the fact what is controlling the achievement of the objective is something totally different from the habitat, and we aren't achieving our habitat objectives --

THE CHAIRMAN: But aren't we looking at whether or not the objective has been met? Aren't we looking at whether or not there is a healthy moose

population out there increasing at the rate that you determine objective-wise it should be increasing?

And there have been regulations and there have been other controls put on by the Ministry to attempt to ensure that there will be that population objective being met at a particular point in time, in this case the year 2000.

MR. HANNA: Mr. Chairman, I think I will continue on with the questions, perhaps where I am coming from will be a little more clear after I proceed on. It's this question of acceptability of impact and I'm trying to get at and the acceptable impact in this case is using population and yet what we're managing in this Class Environmental Assessment is habitat.

THE CHAIRMAN: But by managing you end up with effects on population.

MR. FREIDIN: Sure.

MR. HANNA: Absolutely, but there is not a unique correspondence, that's my concern, sir.

DR. EULER: There is not a unique correspondence.

THE CHAIRMAN: You are saying it's not solely controlled by habitat?

MR. HANNA: Exactly.

THE CHAIRMAN: Well, I don't think any of

us are disputing that.

MR. HANNA: I am not disputing that either, sir. Perhaps I should continue on with the question.

MR. MARTEL: It's not dealt with in isolation. I mean, I am not sure you can deal with it strictly in isolation in the EA and forget the other things that are occurring at the same time like targets under the Strategic Land Use plans and so on, those targets and the licensing and all that is still going on at the same time that this is going on.

MR. HANNA: I agree with you wholeheartedly, Mr. Martel. I am coming at this and looking at it from the Board's perspective and saying: The Board is being asked to decide on the acceptability of environmental impacts. One of the impacts that the Board is looking at is the impact of harvesting on wildlife. The Board cannot control hunting seasons and all the other factors.

THE CHAIRMAN: No, but we are taking into account that there are factors out there such as hunting controls.

MR. HANNA: I certainly appreciate that and I appreciate that you should take that into account in making these sorts of decisions and I am trying to

look at, in terms of this question of acceptability, what is an acceptable impact.

If we use the objective as our measure to decide on acceptability, I look and I see a population, we are meeting our population objective and, therefore the impacts are acceptable, where in actual fact the reason we may be meeting our objectives is because there's major restrictions on hunting for example or there is whatever that we might be doing in terms of achieving that and at the same time if you look at the habitat it's not at the level that we would have liked to have in terms of balancing all the factors.

THE CHAIRMAN: But wouldn't that require, Mr. Hanna, changing the objective? Wouldn't that require ultimately to say to yourself: Okay, we may be missing the boat on habitat in terms of impact, they may be more severe in terms of habitat but wouldn't that, given everything else that is in place, mean that your objective might be far in excess of 160,000?

MR. HANNA: Perhaps -- I am sorry. Perhaps I could just ask the next question, I think it leads directly to where I'm going.

THE CHAIRMAN: Okay. Let's see where you are going, because I don't know how helpful this all is if you're not going somewhere.

MR. HANNA: I understand. Well, I was trying to go somewhere, I am not sure whether I am going somewhere.

Q. Dr. Euler, are there quantifiable measurable habitat objectives for moose that the Ministry has set?

DR. EULER: A. No. We have some guidance that we give our staff, but we haven't set quantitative habitat objectives. We have set population targets of moose as an objective.

See, what we had to do was sit down and say: What is a realistic objective for moose management in this province given the current circumstances, given timber harvest, given the need for moose and hunter days and hunter recreation, we had to integrate that all into a number, and we did that and it was 160 thousand. Now, we can't have 160,000 moose and bad habitat for moose, it just doesn't compute.

Now, it is true that the potential of the land to produce more moose is there. We could, if it were strictly a case of having more moose on the ground, we could produce more than 160,000. The 160,000 represents a compromise, an amalgamation of a whole lot of different interests and it doesn't represent the potential.

We could produce more if the people wanted more, but that is the tradeoff type decisions that very been made and they are represented by this target.

Q. I agree with you wholeheartedly. I think you have captured the concept behind those points and what I was trying to put out. The point that I am asking is: Could I get to that 160 by, let's say, emphasizing a little bit more the habitat or a little bit more reducing hunting pressure? Can I not - how should I say - get that 160 with a variety of different combinations of your six guns?

A. Well, sure, sure. And you might even have a shotgun that you would pull up or a 22 or something.

Q. I'm using your six guns. I don't know what is in the arsenal here, but --

A. Well, there is a lot. There is a lot and there is some big guns too. You can get there in a lot of different ways, you see, that isn't the point. The point is you've got to set a good objective, a really good objective, you've got to put a lot of effort into that objective and then you achieve that objective and you use different techniques to manage that system to get where you want to go.

Q. I don't want to go back through the evidence. I think you've made that very clear in your evidence.

A. Okay.

Q. What I am was simply asking is: You can get to your objective, your 160,000 objective--

A. Yes.

Q. --with emphasizing various of your tools?

A. Yes, of course, sure.

Q. Where has the Ministry stated what it wants in terms of moose habitat as opposed to what it does not want?

A. Well, it's stated it in its objective to achieve 160,000 moose. We have to have habitat sufficient to support that amount of moose.

Q. But I am asking you -- that is fine, but -- we have to have that habitat, but I don't see it laid out anywhere what that constitutes and this in fact goes back to a line of questioning I believe Mr. Tuer had with you in terms of how the objective was developed.

A. No, it's not laid out anywhere. See, we have integrated that into a simple number that people can shoot for.

Q. No, I don't want to go back through the whole thing. I think the questions are fairly straightforward in terms of -- I understand there is all these other things to take into consideration, but I'm going to try and deal with the essence of what I am asking.

Can we go to this question of magnitude, intensity, frequency and duration?

A. We can try.

Q. Now, would you agree that in order to establish acceptability, one must consider the magnitude, intensity, frequency and duration of any given impact?

A. Sure. Yes, I would agree.

Q. If impacts are defined in terms of magnitude, duration, frequency and its intensity, is it not necessary for the objectives to also be defined according to those four parameters for a comparison to be made?

A. No, I don't think so, not at all. What you are interested in is your destination.

Q. So at the year 2000 the world stops?

A. Not at all. We set a new set of objectives. It should be a constant process of setting objectives and trying to achieve them, setting

objectives and trying to achieve them and you always have an objective. You never go to bed at night without an objective.

Q. I think you are speaking for yourself, Dr. Euler.

A. Well, perhaps I am.

THE CHAIRMAN: I am not sure how much of this we want on the record.

MR. HYNARD: A. Mr. Hanna, could I try and be helpful here. It seems to me you asked a similar question, if not the same question, of me with regard to significance and acceptability of effects and my answer to you was that effects are significant if they impinge upon our ability to attain the Ministry's various resource management objectives and I believe that you went on to ask me if we had quantifiable or quantified objectives for all our various interests.

I gave it some thought afterwards and I think there was an element missing in my answer, and I think that element occurred in Panel 9 when Mr. Armson was talking about the effects upon nutrient pools and I think he made the comment that effects would be significant if they are greater than the effects that would occur within the natural environment, considering natural disturbance and the frequency, intensity,

duration and effects -- or extent of their effects.

That is my recollection and I think, and certainly I personally would agree, that affects would be significant if they were greater than that or at least they could be.

So there's those two elements. The importance of those effects would be if they did impinge upon our ability to achieve our targets and, secondly, if they were greater than those that could occur in the natural environment considering natural disturbances and those various elements that you mentioned; magnitude, intensity and so on.

THE CHAIRMAN: Are you saying that if they were greater that the impact would therefore be unacceptable?

MR. HYNARD: Well, it would be significant.

THE CHAIRMAN: You still might be able to meet the target though?

MR. HYNARD: That's true, that's true. We said there were tradeoffs. It would be important, it would be significant, it would be measurable, it would be outside of the norm, it may be we are still prepared to live with it, it may be acceptable, but I recall Mr. Armson in talking about the effects of

things like full-tree removal on nutrient pools that he did not consider it significant if it was no greater than that which occurred in the natural environment here in Ontario.

I know Dr. Euler was thinking of moose, at the time I was thinking of nutrient.

MR. HANNA: Q. Well, I think it's a reasonable suggestion to make, Mr. Hynard, but would you disagree with me that I could virtually conceive of, I wouldn't say almost indefinite, but virtually anything happening in the natural environment in terms of the forest eco-system?

MR. HYNARD: A. Well, I think it's -- I don't know about virtually anything, but I think it is important to understand that Ontario's natural environment is a disturbance environment, that our forests and I presume the wildlife too, Dr. Euler, have grown up with that pattern of disturbance and while there are effects, local effects given the intensity of a disturbance, keeping in mind that natural disturbances themselves can be very intense and cover very broad areas but, nonetheless that is how our forests and wildlife have evolved and they are well suited to that, with a few exceptions.

And I believe Dr. Euler pointed out a

couple of exceptions of wildlife species that had very, very narrow niches and, for that reason, they didn't have a great population in Ontario.

Q. Well, I think you missed the point of my question. I am sure you are aware there has been a great amount of money spent in this province working on what are called design storms. The reason we spent a lot of money working on design storms is because there's virtually an infinite flood that we can imagine, so we have to decide on what's a reasonable flood to plan for.

Could I not use that analogy with what you've just given me in terms of natural events?

A. No, no, absolutely not because I said there were two elements to this question of significance. The one is: Is it greater than would occur naturally. Well, if it is natural for the storm to wipe out the valley that doesn't mean it's acceptable.

If it were to impinge upon our ability to attain our objectives and if our objectives are to protect lives and property, then it would be significant.

Q. Well, I just want -- I really didn't want to go into this line of questioning, but I just

wanted to finish it off. So you are saying that if we meet the objectives, if the impact meets the objective it's acceptable at that point; if it impinges upon the objective it's not acceptable and as a further measure of acceptability to look if one is below that limit and then compare it against natural events and make a further determination?

A. Yes, I think there is that second element to it also.

Q. Dr. Euler, we continually change our objectives and I certainly appreciate that. There is not however, you would agree, a potential pitfall there in that if we continually change our objectives too frequently or always, we never have to worry about attaining them because we have always changed them?

DR. EULER: A. That is a potential pitfall, I would agree.

Q. Now, what I don't understand is why the foresters - and we have heard it throughout this hearing - are looking into the future -- two, three, four rotations into the future because they realize, if you will, the connectiveness of their actions.

I am speaking here about habitat and it seems to me that habitat and forest are one in the same. Now, if you are changing your objectives all the

time with respect to habitat, how can you ever know whether you've attained them?

A. Oh, we are not changing them all the time. We have objectives, we set them on October 22nd, 1980. We haven't changed them all the time, we probably won't change them again until the year 2000 and even then we might not change them. We may find that 160,000 is quite an acceptable number, that that is what the people of Ontario want, it's a good balance between timber needs and wildlife needs. That could stay there for another 20 years.

Q. I am not trying to go back and re-evaluate the 160, because I quite honestly think that the approach Ministry has taken in that respect is a good one, it is a way to make tradeoffs in whathever. Whether or not it should be outside of this Board another thing, but the question I am trying to get at is: What we are really trying to deal with is wildlife habitat.

A. That's what you are trying to deal with.

Q. I am sorry. Again, I come back to what I believe is within the purview of this undertaking.

A. But you are setting an objective.

You are saying what you really need is wildlife habitat, that is your concept.

The Ministry has said that we have a target of a population and to get that population you have to have a certain quality habitat. I mean, you have no choice, you won't get 160,000 moose if you don't have habitat for 160,000 moose.

Q. Okay. Well, let me say this --

THE CHAIRMAN: Mr. Hanna, I think we are going around in circles because what I believe the Ministry has said is they do not have quantifiable objectives with respect to habitat.

DR. EULER: Yes.

THE CHAIRMAN: They do have quantifiable objectives with respect to some featured species, moose being one, the target being 160,000 in the year 2000. That is their position.

Now, you may wish to take the position in your own case that there should be quantifiable objectives with respect to habitat and you are at liberty to do so and, you know, this witness and others have given their opinion that, in the Ministry's view, if they meet those objectives which they have set which involve tradeoffs amongst a number of other factors they feel that the impacts from a particular activity

would be acceptable and, unless I am misquoting what the Ministry's position is.

DR. EULER: No, that's correct, that is the position.

THE CHAIRMAN: I don't think we get any further by going through whether or not they are evaluating habitat in another manner; they don't appear to be doing so. You can bring it up through your own side of the case as to whether or not they should be doing so. I think we should move on.

I think we should move on perhaps to a different area.

MR. HANNA: Two questions. I am moving on, sir, but I am coming back to this question of featured species and the 70 per cent of the species that are supposedly captured by our featured species objective.

Q. Dr. Euler, can you explain to me why you feel the 70 per cent will be dealt with effectively through the featured species moose in the boreal forest?

DR. EULER: A. Well, we reviewed all the literature and all of the knowledge that we have of the vertebrates that occur in the area of the undertaking and we looked at the moose guidelines and the deer

guidelines and we came to a conclusion that those guidelines when they were applied on a broad general scale will provide habitat for about approximately 70 per cent of the vertebrates that are there.

They do not address the needs of the other 30 per cent and that's in this paper, Featured Species Management, Ontario.

Q. Yes, I am aware of that. Now, I would like to read to you from an article that you wrote in April, 1985 from the Forestry Chronicle. I am just going to read from the abstracts.

It is only two sentences, Mr. Chairman, I don't intend to enter this as an exhibit.

"Moose populations have declined in Ontario by about 35 per cent over the last 20 years."

Now, if we were to have been having this hearing when you wrote that paper in 1985, what would we conclude with respect to the acceptability of harvesting impacts?

A. Well, you mean timber harvesting or harvesting of moose?

Q. We are talking timber harvesting here I believe.

THE CHAIRMAN: Yes, but the reason for

the decline might not be timber harvesting, it may be something else. I mean, how can you say what can you get from that statement?

MR. HANNA: Mr. Chairman, the witness has just said that the reason they feel 70 per cent of the other species will be dealt with by the featured species is because the habitat that goes along with achieving that objective.

THE CHAIRMAN: As well as other things.

MR. HANNA: But the other...

THE CHAIRMAN: There are other factors involved. It is not just habitat, there are other factors as well.

MR. HANNA: Mr. Chairman, I assure you I appreciate that. What I am trying to come at is that through the featured species, trying to guarantee a certain habitat in the boreal forest not just for moose but for 70 per cent of the wildlife species.

If we look at the acceptibility of the impacts based on the moose population, there is no connection between the moose population and the population of the 70 per cent -- 70 per cent of the other species, there may well not be.

You could have a bad winter, we could have the moose population collapse and the other 70 per

cent of the wildlife population might be doing very well.

DR. EULER: Yes, and that's why we have to monitor them and we are.

MR. HANNA: But I am back to this question of acceptability. It revolves around the question of acceptability, sir.

THE CHAIRMAN: So what is your specific question based on that statement that you just read in?

MR. HANNA: Q. Well, okay, I --would we have concluded in 1985 that because we aren't obtaining our objectives that the impacts of harvesting would not be acceptable?

DR. EULER: A. I'm sorry, I just can't follow all those negatives in your question. Could you rephrase it simply.

Q. I'm sorry, I'll try and do it in the positive --

A. I mean, we are go in nots and overs and backs and throughs and....

Q. In 1985 you concluded 35 per cent reduction in the moose population over the last 20 years?

A. Yes. Had occurred, yes.

Q. Had occurred?

A. Yes, a reduction in the moose population had occurred. I wrote the paper in '85, but of course the period that I was talking about was prior to that.

Q. Well, whatever period it was.

A. Right, okay.

Q. And if I was to look and decide upon the acceptability of harvesting impacts with respect to that objective, the objective you had set for the year 2000, would I not have concluded that the acceptability of the impacts were negative, were not acceptable?

A. Yes, of course.

Q. Thank you. So then you would agree with me it is very difficult to determine acceptability solely on the basis of a population target?

A. Absolutely not, it is not true at all. In fact, that's the very best way to know whether you are achieving your objectives.

Q. Your habitat objectives?

A. No, your population objectives.

MR. HANNA: You're right, Mr. Chairman, I will move on. I am afraid we are going around in circles.

Q. In your evidence you indicated that the recent increases in the moose population were a

considerable expense to the public. Were you referring to losses in the quality and quantity of hunting and viewing opportunities needed to allow the moose and deer populations to recover?

DR. EULER: A. Well, mostly the hunting opportunities. The hunters have had to accept some very major sacrifices in their recreation, in the choices of where they could hunt. They have been hard hit by our regulations.

And I think I used the word cost meaning cost in the broader sense of the term, not necessarily the money cost, but loss of recreation and hunting, loss of choice about where they could hunt, restriction on the kind of animal that they could shoot.

Q. Were groups like the Ontario Federation of Anglers & Hunters strong advocates of approved harvest regulations--

A. Oh, yes.

Q. --before they were introduced?

A. Yes, they were. They certainly were. They were very, very supportive.

Q. Now, we have indicated there are several ways to achieve wildlife targets. If population control techniques are used, hunters bear the cost; correct?

A. That's correct.

Q. If habitat manipulation measures are used, forest companies bear the costs?

A. That's right.

Q. Have you ever analysed the economic benefits of the two techniques and attempted to arrive at an optimum?

A. Well, the whole purpose of our management effort is to arrive at an optimum and that's what our target represents, is an optimum tradeoff between cost to the companies and cost to the hunters.

And I mean, I am using the word cost in the broadest meaning of the term, not just the dollar cost but the cost in loss of choice, for example, about where to hunt. That's a restriction on the hunter or the kind of animal the hunter can shoot or that sort of thing in the broad sense has meant a restriction on his recreation.

Now, we have not sat down and done a strict economic analysis in terms of dollars only, no, but what we have tried to do is amalgamate all of these factors as best we can.

Q. So what you are saying is you have not done a comprehensive social and economic evaluation?

A. No, I am not saying that. No, no. I am saying we have done a comprehensive social and economic evaluation, but we have not done a strict economic evaluation with numbers and paper and so on.

Q. So you haven't done a comprehensive explicit social and economic analysis?

A. Well, I would say we have done our very best to evaluate the tradeoffs.

Q. One last question on this topic and I would like to move on to another thing. Would you agree with me that in setting these objectives to measure acceptability that one must be very cautious to ensure the objective and the impacts are closely connected?

A. Yes, you should do the very best you can to do that.

MR. HANNA: Mr. Chairman, could I just have a moment. I have a list of questions here that somewhat overlap what we have just said.

THE CHAIRMAN: Why don't we take the afternoon break at this time and you can readjust over the break. 20 minutes.

---Recess taken at 2:20 p.m.

---On resuming at 2:50 p.m.

THE CHAIRMAN: Thank you. Be seated,

please.

MR. HANNA: Q. Dr. Euler, I believe that we spoke about the matter of wildlife targets and timber management plans and I believe you agreed that's a good idea?

DR. EULER: A. Yes. See, you use the word wildlife target, okay, and that's what I am agreeing to, is that we should have a wildlife target. That's a very generic term, it can mean almost anything.

Now, if you want to say population target that's a different word; if you want to say habitat target that's a different word as well, but I am agreeing that as a general thing it is a very good idea to have wildlife targets.

Q. Would you like to see in the timber management plans specific wildlife objectives with respect to moose, and by that I mean specific population or habitat targets?

A. In the timber management plan?

Q. Yes.

A. No, I don't think that's necessary. I think the wildlife people should have their own objectives and they can work towards achieving those objectives. Timber management is one part of achieving

those objectives, but it doesn't have to be in the timber management plan.

THE CHAIRMAN: It is in the plan in the sense that if the objectives are expressed in the guidelines which are mandatory to observe and the plan has to comply with the guidelines, then it is in a sense in the plan directly?

DR. EULER: In a sense. In that sense. Yes, it would be in a plan in that sense. Now, I took the question to mean that, you know, put the numbers in the timber management plan and I don't think that's necessary.

MR. HANNA: Q. Is it necessary to have them somewhere for a specific planning area, in this case a timber management unit?

DR. EULER: A. Well, it's certainly necessary to have your targets somewhere. Now, we make our wildlife targets in general on the basis of our wildlife management units and that's very adequate.

Q. I had this question written. I thought you were going to agree with Dr. Baskerville, it looks like we are disagreeing against Dr. Baskerville.

I believe that he has said that he has recommended to the Ministry that quantified, measurable

non-timber values are included in timber management plans; is that correct?

A. Well, I don't know. He may well have, I just don't know.

MR. HANNA: Mr. Chairman, I don't have the exhibit right here at the moment. I can produce the exhibit where those words are used. There are five, I believe, components to Dr. Baskerville's recommendations. If you wish I can bring that forward.

THE CHAIRMAN: Well, no. Why don't you just ask the witness on the assumption that Dr. Baskerville recommended that, what is this witness' opinion.

MR. HANNA: Okay.

THE CHAIRMAN: That's the question.

DR. EULER: Okay. Well, I am sorry, I was just checking for it. Can we have the question again?

MR. HANNA: Q. On the basis that Dr. Baskerville made the following recommendation, I would like to get your opinion.

DR. EULER: A. Okay.

Q. And the recommendation, as I understand it, is that there should be quantified, measurable non-timber objectives included in timber

management plans?

A. Well, yes. You see, I can agree with that, no problem. Now, you have to be careful when you use these words because what Dr. Baskerville advocated is quantifiable habitat targets and that's very different.

We are talking about targets of wildlife population, numbers of moose. Now, that's not quantifiable habitat targets. They are two very distinct things and it is important to keep the differences in mind.

Q. Good. I think we are moving forward here. Then you are saying that you do agree that there should be specific wildlife habitat targets quantified and measurable in timber management plans?

A. No, I am not agreeing with that.

THE CHAIRMAN: Well...

DR. EULER: See, each time you ask the question you ask it slightly differently and, therefore, my answer changes. So you need to ask it the same way each time.

THE CHAIRMAN: I am not sure we got the distinction between the question the first time and the second time that changed your answer.

DR. EULER: Okay.

THE CHAIRMAN: What --

DR. EULER: You see, sometimes he uses the word wildlife targets in the very generic sense. Okay, that can being anything, that can be the viable population that you are talking about here.

Sometimes he uses wildlife targets in the population sense where you count the number of animals and sometimes it is habitat targets. You see, that's something very else.

A habitat target is you would have -- in the timber management plan you might say: Well, we must have 15 per cent old-growth forest, say, 10 per cent early successional and 25 per cent mid-successional. That becomes a habitat target and that is what Dr. Baskerville advocates.

Now, the Ministry hasn't chosen to do that. The Ministry has said: Let's take a target of population numbers because that integrates everything into a relatively simple number. It also allows the manager to make some professional decisions about how to achieve that target, and there are some bounds within which the manager can achieve that target.

MR. HANNA: I don't see the difference but I got the answer I wanted, so that's fine, Mr. Chairman.

Just one other thing I caution in this, I think we already talked about trying to interpret what Dr. Baskerville means. I assume when Dr. Euler is saying what Dr. Baskerville advocates it is his interpretation of what...

THE CHAIRMAN: That's what he thinks Dr. Baskerville advocates. We are going to find out I think later what Dr. Baskerville actually advocates.

MR. HANNA: Q. I am hesitant to ask this - if I could word it again - but what you just described to the Board, the 15 per cent old-growth, et cetera, you would want to see that included in the timber management plan?

DR. EULER: A. No, I do not.

THE CHAIRMAN: No, I think the Board understood it the second time around, he is not saying that.

MR. HANNA: Maybe I should ask the Board. Does the Board understand what he is saying should be in the plan?

MR. FREIDIN: I think it is clear what he says should not be in the plan. That's the way you put the question: Should this be in the plan, and I think he said no.

MR. HANNA: Q. What should be in the

plan, Dr. Euler?

DR. EULER: A. Okay. Now, that's a very different question of course, and I think the planning process as it now stands is fine and there are not any, as far as I know, wildlife targets in the timber management plan.

So the timber management plan is a prescription for how to harvest the forest. That's what I think should be in the plan, a prescription for how to harvest the forest. That's the purpose of that timber management plan.

Q. Back to Dr. Baskerville and his recommendation in terms of quantified measurable non-timber values--

A. Okay.

Q. --in timber management plans. Do you agree with that?

A. No, I wouldn't agree that they should be in the plan.

Q. Thank you. Where should they be?

A. In the wildlife management activities of the Ministry.

Q. And they should be disaggregated on the basis of wildlife management units?

A. Yes.

Q. Are the wildlife management guidelines applied on a wildlife management unit basis or a timber management unit basis?

A. Now, when you say wildlife management guidelines, what do you refer to?

Q. I'm sorry, I should be specific. When we are going through, I would just really like to go through one example which is moose. So when I say that, I am referring to the moose management --

A. Okay.

Q. Moose habitat.

A. Okay. The Timber Management Guidelines for the Provision of Moose Habitat; right?

Q. Exhibit 310.

A. Okay. Okay. So...

Q. Are they applied on a wildlife management unit basis or a timber management unit basis?

A. Usually a timber management unit basis.

Q. Now, Mr. Hynard in his evidence the other day indicated that for his particular unit there was a number of wildlife management units within his timber management unit; is that correct, Mr. Hynard?

MR. HYNARD: A. Yes. I said there were

three or at least parts of three.

Q. I believe you also said that the timber management unit in your particular case was larger than the wildlife management unit?

A. That's right.

Q. Dr. Euler, in the boreal forest would you say that is the norm or the exception?

DR. EULER: A. Probably the norm.

Q. That the timber management unit is larger than the wildlife management unit?

A. Oh, I thought you meant whether their lines intersected. Oh, probably smaller more often than not. I am really not sure of that though.

MR. HYNARD: A. We checked -- I think someone asked me that question earlier and we checked. I think there are something like 87 wildlife management units in the province.

DR. EULER: A. We have an exhibit that shows all of them.

MR. HYNARD: A. Yes. In that order and there is something over a hundred timber management units. So on average --

DR. EULER: A. They are a little smaller probably.

MR. HYNARD: A. Well, on average that

would make them a little -- the wildlife management units a little larger.

DR. EULER: A. Oh, I see.

MR. HYNARD: A. But they vary tremendously. They do, they vary tremendously.

Q. The key point is that their boundaries are not coincident--

DR. EULER: A. Oh no.

Q. --and you could have multiple wildlife management units in a timber management unit?

DR. EULER: A. Right. That's right.

Q. For a wildlife biologist to evaluate and implement the guidelines, the moose guidelines now, she will need a specific wildlife objective; would you agree?

A. Yes.

Q. And we have agreed that the guidelines be applied on a timber management unit basis, so the biologist is faced with developing that objective from those various wildlife management units at the level of the timber management plan; is that correct?

A. Yes, that's right.

Q. What procedure does the Ministry have for disaggregating the district moose targets to

individual forest management units?

A. Well, there is no written procedure, there is no direction that says to the biologist this is how you must do it. That's left to the judgment of the individual person on the scene.

Q. And what training or direction is given to the biologist in that respect?

A. None. They are expected to be able to do that as normal part of their professional training at university and just using good common sense.

Q. So you would be able to do it?

A. Yes.

Q. Are you familiar with Mr. Hynard's crown management unit?

A. I have seen parts of it, yes.

Q. What would be the deer objective for his crown timber management unit?

A. Oh, I don't know.

Q. How would you go about estimating it?

A. I would go and check the land use guidelines for his area. It would be -- whatever he has would be in the land use guidelines.

Q. Are you suggesting then that in the District Land Use Guidelines there is a table or some

other description by timber management unit that indicates the wildlife objectives for each of those?

A. No, it's not by timber management unit but as a district there is a target of deer and it will be expressed. I am not sure how Mr. Hynard's is expressed because we have a lot of targets for the whole province and I can't remember each and every one, but there will be targets there and they will be expressed in some form and we would have to go there, find it, see what form it's expressed in and then see how that relates to his crown management unit, but there would be -- he would have the ability to translate that.

MR. HANNA: Excuse me one second.

Q. Can we turn to non-game populations.

A. Mm-hmm.

Q. Exhibit 474 is there behind you and I believe that is intended to show an example of what is meant by the viable population objective?

A. That's right. To illustrate the point, yes.

Q. Now, ideally you would like all wildlife species to exhibit long-term population stability; is that correct?

A. Yes, mm-hmm.

Q. Is it possible that a species, through habitat modification such as harvesting, might decline and then stabilize at a lower population level?

A. Yes.

Q. Is it not, therefore, necessary to almost set population objectives for those viable populations?

A. Well, no, I don't think it is necessary to set viable populations for those species. In fact, it would be virtually impossible because most of the non-game species are impossible to inventory in terms of populations at any reasonable cost. And so you are just faced with the fact that it would be very, very difficult.

Now, you may be able to set some kind of an index population so that this line could have an index number based on the monitoring that you are doing and you could say that your objective was to ensure that it never went below that index number. And that would be a good thing to do, I would agree with that.

MR. HANNA: Mr. Chairman, for the record, is there an easy way to describe that line? There is three lines on that map.

THE CHAIRMAN: Well, you are referring, Dr. Euler, to Exhibit 474?

DR. EULER: Yes.

THE CHAIRMAN: And your index line that you are indicating is running parallel to the horizontal axis midway up?

DR. EULER: Yes. Yes, that's right. It is intended to be just a very rough diagramatic illustration of an average. This line would be an average of all of these points over time.

MR. HANNA: Q. Would the line that we have just described be, if you will, the objective?

DR. EULER: A. Yes, that could be -- yes. That would be sort of a little more sophisticated objective than we currently have because your current objective is just viable populations.

Now, that could occur here or it could occur at some lower level or some higher level and by putting it -- tying it to index, that would be kind of a second generation of a little more sophisticated objective and that would be a very good thing to do.

Q. Would you say it would be feasible if we did that only for featured species, and I don't mean -- I am speaking of non-game featured species at this point.

A. Well, see, the concept of featured species you have to remember is that we have some

provincially featured species and locally featured species. Now, when you say non-game, it is very difficult for me to deal with that.

It would be very hard to do that for locally featured species and for provincially featured species we have done that in that this line then would represent -- say in moose, this line would represent 160,000. See, so we have done that for moose, and we are in the process of doing it for deer. We haven't done it for any other species.

Q. I wasn't asking whether you had, it was more a question: Was that a worthwhile exercise in terms of being able to evaluate where you stand in terms of your habitat management in future?

A. Yes. Yes, that would be worthwhile.

Q. Why have you concluded that today's populations are optimal?

A. Oh, I haven't, unless you want to say for moose.

Q. No, no, no, I --

A. We are just saying -- at the moment what we are saying is our objective is to make sure they are all viable; that is, healthy and living. Now, optimal is a different concept.

MR. HANNA: Mr. Chairman, I don't know

the procedures here. I want to put a point there where the dotted line drops off from the squiggly line. I don't know a better way to describe it here.

THE CHAIRMAN: Why don't you just ask Dr. Euler.

MR. HANNA: Can we put an A or something.

THE CHAIRMAN: Well, I don't think there is any problem in marking this particular exhibit; do you, Mr. Freidin?

MR. FREIDIN: No. I think it is probably a better colour than is on there now. He can just make a red X or a red A, whatever you want.

DR. EULER: This is a blue one. Is blue okay with everyone. Do you want it right here?

MR. HANNA: Q. Just the point of deviation where you start to get -- I can't read the word there, but where it's start there to decline. Just call it point A.

DR. EULER: A. Okay.

Q. Thank you. Now, we can move below that line, you are suggesting, to a new level of stability; is that correct?

A. Well, I am saying that - and I think that was the word you used - it is possible, certainly it's possible to move down here. Yes, that is possible

and may indeed happen sometimes.

Q. In the event that we had encountered point A at some point in the future, would you identify this as a cause for concern?

A. Well, the cause for concern would be when it got below what you saw as a natural fluctuation. See, I drew that dotted line there to indicate the process that occurs when a species become -- starts going down on its way to becoming endangered. Suppose that some event occurred here--

MR. FREIDIN: Point A.

DR. EULER: --at point A that started the long road to extinction, well, the first thing as a manager you have to watch for is that this is not just a normal fluctuation like this, and once you have determined that it is not, that it is going down, down, down, then that is the point at which you have got to be very concerned.

MR. HANNA: Q. So then the rule that we could use in that particular circumstance is when it goes beyond the lowest recorded before?

DR. EULER: A. That would be one very good point that you would be very -- right, if it went below the lowest recorded before, then you should be very concerned.

Q. So if you look at that drawing then we could have had point A anywhere back to the left below the line?

A. Yes.

Q. Because those are all down below previous observed values?

A. Yeah. That could have happened without any serious problem. It could easily have been within just the normal fluctuations of that species.

Q. No, I don't think you understood my question. If you look on the time axis -- Mr. Chairman, this is difficult because we haven't got points and whatever, but if you look at where you have gone below that index line, I think we have called it, it might be easier to put numbers and letters on this simply for reference, sir, whichever you find easiest.

THE CHAIRMAN: Well, okay. Why don't we start -- mark point B where it starts to go below the index line.

DR. EULER: Right here?

THE CHAIRMAN: No, no.

DR. EULER: Right here?

THE CHAIRMAN: No, up further where it starts dipping below that horizontal axis line?

DR. EULER: Right here?

THE CHAIRMAN: Right.

MR. HANNA: Q. Okay. Now, if you move from point B to the right, you go beyond the previous observed lower limit that you've had?

DR. EULER: A. Right.

Q. So at that point we can say that is a point A potentially at that point?

A. Well, potentially, yeah.

Q. With the rule that you just gave me, that is a point A?

A. Not necessarily.

THE CHAIRMAN: No, but I think what he is getting at is, under the rule you just gave that might be an indicator that maybe you should be concerned because everything previous to that recorded has been higher in index line?

MR. HANNA: Mr. Chairman, if I could just clarify - I'm sorry, to expedite things here. It is what was observed in the past, and so it's not just the index line it's any observation in the past.

And so if you look right at the beginning of the graph it is below the index line and so I am looking at when you get below that observation, at that point.

DR. EULER: That is not point A. I am

totally confused, I am sorry.

MR. MARTEL: I think what he is saying is back up to A.

DR. EULER: Okay.

MR. MARTEL: That A at that point -- and I think you said if you continue to go beyond that down--

DR. EULER: Right.

MR. MARTEL: --it goes beyond the expected normal fluctuation.

DR. EULER: Right. See, this is the point of concern right here.

MR. MARTEL: Right. And if you go back to the B, it is still part of the normal fluctuation?

DR. EULER: Right. That's right. See, point A is and of itself not a concern, it is only when you get down to C that you begin to say: Now we may have a problem because it may just be a normal fluctuation.

THE CHAIRMAN: Yes. But, Dr. Euler, when you are going back in time and you first hit B--

DR. EULER: Yeah.

THE CHAIRMAN: --how do you know what a normal fluctuation is?

DR. EULER: Well, you may not. You may

not.

THE CHAIRMAN: Because everything prior to that has been above the line.

DR. EULER: Has been up, that's right. it takes a series of years to be able to get a good index line, you can't just do it with one or two years' of data.

MR. HANNA: Q. That is fine. Now, is there -- maybe the rule I asked before has somewhat been violated now.

Is there a procedure that the Ministry has in place that says: Okay, this is a cause for concern, we have got to admit natural variance in this population, we are outside the variance, there is a trend. How will you make those decisions?

DR. EULER: A. Well, there is no formal written procedure that everyone reads and can follow. It us done by being alert, being concerned and doing the best we have with the knowledge we have, but there is no procedure formal written down, it just doesn't exist.

Q. So would you say then that the biologists are put in their perennial position of walking into senior management with gloom and doom and saying: We have got a problem in saying that until

finally upper management listens.

A. Well, I don't think I can quite agree with it in those terms. The biologists make every effort to carefully ascertain the facts of the situation and present it as best they can.

MRS. KOVEN: But certainly for some species you can differentiate whether you were in a trough or whether you were on a straight decline by a new inventory, you have talked about bird inventories and --

DR. EULER: Mm-hmm, yes.

MRS. KOVEN: And that certainly is one limit on your knowledge?

DR. EULER: Yeah. That's right, exactly.

MRS. KOVEN: It doesn't apply to a lot of species.

DR. EULER: That's right. Yeah.

MR. HANNA: Q. Well, you would agree then that there is a lag between the time that the impact occurs and becomes significant and the time that the Ministry convinces that this so and takes some action?

DR. EULER: A. Well, yes, that can happen, sure.

Q. Now, is it not also true that once we

know we are on -- we are past point A, we are past point C and we are on that line, we have to determine what the cause is?

A. Yes, that's right.

Q. Is that easy?

A. Never. It is never easy it, is always very, very hard, or almost always.

Q. So now we have detected a change, we think we are on the line, we don't know why we are on the line and there is a further time then to respond to that concern?

A. Well, there can be, yes. By the time you -- yes, that's right, because you don't -- if you don't know what the cause is you may not be able to apply a solution.

Q. Do you have any suggestion how long that might take?

A. No. It varies depending on the species, the longevity of the species, the number of the species. It just varies all over the place.

MRS. KOVEN: Sorry. For game wildlife, wouldn't the immediate solution be the hunting regulation?

DR. EULER: Yes.

MRS. KOVEN: And you wouldn't necessarily

have to determine whether it were disease or any other cause, you could control the decline somehow or you could take a shot at it with --

DR. EULER: Well, yeah. Yeah.

MR. HANNA: No pun intended.

DR. EULER: In a matter of speaking with your six gun. But, see, the problem with that is as soon as you do that then you begin to cut into peoples' recreation and you really should be very, very sure that that was indeed the cause of the decline before you begin to really regulate them.

See, we spent -- this happened in moose. We were -- in moose we were down below point C somewhere and we got down here a little further than any of us would have liked to get before we applied the solution because we did want to wait and make sure we got the right solution because if you get down here and apply the wrong solution it just isn't going to do you any good. And so we waited and people were anxious and worried and concerned, and we got down to this line a lot further than we really wanted to be before we applied the solution, but then once we applied it the population has started back up again.

Now, with other species it may not be quite so clear -- a decline of something else may not

be so clearly linked to a causal action.

MR. HANNA: Q. I believe in your evidence you indicated the only species that is potentially on that line is the red-shouldered hawk; is that correct?

DR. EULER: A. Yes.

Q. When was --

MRS. KOVEN: Is that true or is that for adequate information that would allow you to make that statement?

DR. EULER: Well, see, the question was: The only species that is potentially on that line, and I think that that is true, that we are very concerned about the red-shouldered hawk. It maybe, it maybe down in here at this point. See, there is some --

MRS. KOVEN: But my point was there may be other species that are in a similar situation but you simply don't have the information?

DR. EULER: Well, that is always possible too. We don't think so, but we can never be certain in this business.

MR. HANNA: Q. When was it concluded with this particular species, the red-shouldered hawk, that we were on that line; when did your Ministry conclude it?

DR. EULER: A. Well, I don't know when that was concluded. Maybe it was concluded when we designated rare and I just don't know what the date is.

Q. It is important. Could you try and give me the date?

A. Well, I can try. I am not sure. You want the --

Q. The year is fine.

A. This isn't the kind -- there just isn't a written procedure for this kind of thing and it just doesn't exist and so if we chose the date at which red-shouldered hawk was classified as rare by the Ministry under -- as a status, then that is as close as I could come to answering your question and I just don't know what date that was.

Q. Well, can you give the Board some indication. Was it in the 1990s -- or the 1980s, the70s, the 60s?

A. Well I would think it was early 80s because that is when the status report was done. One of the things that happens when people begin to express concern that something might be down in this area, is we commission a status report and we ask somebody to look at all the data that are available on a particular species and come back with some kind of evaluation.

So a status report was done for red-shouldered hawks and it was several years ago, in the early 1980s at some point. Now, I can try to find the date and I just don't have it at my fingertips.

Q. Well, maybe we can get it some time later if you can dig that up within the next couple of days. Now, after the Ministry did a status report, what did you do next?

A. Well, the next step is to try to make people in the Ministry aware of the status of this bird so that insofar as forest management affected it they can begin to take remedial action.

We also had Mr. -- or Dr. Ross James at the Royal Ontario Museum draw up a guideline for managing these birds in the forest management situation -- timber management situation, sorry, and that was then given to our staff so they could begin to take remedial actions as possible.

Q. When was that guideline prepared?

A. Well, again, I don't have the date right with me.

Q. But you can give it to us later.

A. I should be able to find out the date of it, yes.

Q. Is that guideline in final form?

A. Well, I don't -- I think it is a draft guideline. It would be a draft guideline.

Q. So it's not a final guideline yet?

A. It is still a draft guideline, yes. So it is not final, that's correct.

MR. HANNA: Mr. Chairman, I would like to produce an article on red-shouldered hawks.

THE CHAIRMAN: Very well.

MR. HANNA: (handed)

THE CHAIRMAN: Exhibit 516.

---EXHIBIT NO. 516: Senior thesis article on red-shouldered hawks.

MR. HANNA: Q. I would like you to look at the conclusions on page 19. I have not included the whole report, but the conclusions at page 19 and particularly conclusion No. 5. Could you read that, please?

DR. EULER: A. No. 5:

"The probable cause of the decrease in the population is a result of a synergism of many factors. Those primarily responsible are pesticides, habitat destruction, increased competition with other raptors."

Q. Would you say that this indicates

that there was some problem with this species at that time?

A. Yes, that certainly does indicate that there is a problem.

Q. Could you turn to the Table 6 which I believe is the last diagram there.

A. Yes.

Q. Excuse me, there is a graph. I think the graph is actually -- Table 6 continued.

A. Yes.

Q. Now, I would like you to look at that graph and I would like you to look at the graph behind you, Exhibit 474.

A. Yes.

Q. And I believe the graph starts about 1952 and goes to 1967. I am looking at the Figure 1?

A. Yes.

Q. Would you say that that is on your dotted line?

A. Well, I can't conclude that yet just on the base of this. This is red-shouldered hawks from all over eastern North America it looks like, northern an eastern States and it certainly is a decline but, you know, I can't conclude from simply looking at this that it is over here. I don't know if it is over here

or over here.

Q. How many years more would you need to know whether it is here or here?

A. I don't know the answer to that question either. I mean, you just can't pull these things out of context and decide solely on the basis of one graph.

THE CHAIRMAN: Dr. Euler, we are going to have to try and tie in the over here and over there, Exhibit 474 --

DR. EULER: All right. Sorry, Mr. Chairman.

THE CHAIRMAN: --because when we're reading the transcript we won't know what we are talking about.

DR. EULER: Yes. All right. Shall I put some numbers on it, or would you like me to describe it verbally?

THE CHAIRMAN: I think you can probably do it verbally. It will be just as easy.

DR. EULER: In Exhibit 474 the first peak is represented by the second -- the second peak -- well, wait a minute. Can we start over.

Would you let me number them, Mr. Chairman? I think it will be easier.

THE CHAIRMAN: By all means.

DR. EULER: Thank you very much.

THE CHAIRMAN: I think that way we won't get in any trouble.

MRS. KOVEN: Mr. Hanna, for whom was this study done?

MR. HANNA: I left my mark in the front hoping the Board would notice. It was done as a senior thesis.

THE CHAIRMAN: Who marked it?

MR. HANNA: Actually Mr. James was involved and one of the people involved with Mr. James at the Royal Ontario Museum.

THE CHAIRMAN: Dr. Euler, do you want to just repeat what you said using numbers.

DR. EULER: Well, when you just take one graph and just look at one graph, simply a series of numbers between dates and times and numbers, it certainly is something that's very helpful that you want to continue to look at, but in fact with only that you don't know if you are at a position similar to a point 1 to a point 2 change or a point A to a No. 3 change. In and of itself you don't know.

Now, that doesn't mean you are not concerned. In fact we should be very concerned about

red-shouldered hawks and I think we are, but you also have to keep in context that much of the loss of red-shouldered hawks has been because of the destruction or cutting down of forests throughout southern Ontario south of the area of the undertaking.

So these numbers show a very pervasive red-shouldered hawk problem throughout all of North America and whether that's happening in the area of the undertaking is a different question. We just don't know on the basis of one graph put in front of us, and that's all we are looking at.

MR. HANNA: Q. Dr. Euler, can you tell me when the red-shouldered hawk was first blue listed?

A. No I can't, I don't know that date.

Q. Perhaps you could explain to the Board what the blue list is?

A. Well, the blue list is a list kept by National Audibon Society in the States of birds that are -- that they have a concern about and that they feel further studies should be conducted to determine if there is a problem.

Q. Would it surprise you if I told you that the red-shouldered hawk was blue listed in the late 60s?

A. No.

Q. I am going to ask you a hypothetical here, but it is one that has some relevance to this matter we were considering and that is: If the decline of red-shouldered hawks is due to timber management or partly due to timber management in the Great Lakes/St. Lawrence Forest then that started, as suggested on this graph in 1951, have we not got a problem because in fact we have gone through almost a half a rotation age before we were even considering taking any action?

A. Well, no, I don't think that's true. I don't think we have refrained from taking any action or considering, in fact we had a seminar not long ago where Ross James came to our Algonquin Region - that's right in the middle of the area of the undertaking in the Great Lakes/St. Lawrence Forest - we asked his opinion and he felt as of right now on that date, which was about a month and a half ago, that in that particular area the hawk had -- was no longer declining and he felt that our timber management practices were consistent with producing habitat for that hawk in that part of Ontario.

Now, that doesn't mean we don't have a red-shouldered hawk problem over a bigger area, but we have to be careful about what we are talking about and where we are talking about it.

Q. I don't think you got the sense, it was a hypothetical question. I am not asking about the actual status of the red-shouldered hawk, I am asking: If the situation was that Dr. James had sat down with you and said the problem is timber management, what opportunity does the Ministry have to respond to that because we've already been through half a rotation age?

A. Oh, lots of opportunity because that forest is already managed under a selection system which is reasonably consistent with red-shouldered hawk habitat. There are all kinds of opportunities.

The big thing that we have to do is find out where the nests are and leave a buffer zone around them.

Q. The nests now?

A. Yes.

Q. Not the nests that were there before we harvested?

A. We can't go back.

Q. No, that's fine. I am just saying the population we are looking for is the population today?

A. That's all we can do.

Q. That's all we can do?

A. Sure. We can't go backward in time.

Q. There is no way to increase the red-shouldered hawk population in your view?

A. Oh, no, that isn't what I am saying at all, not at all but we have to work with what's there now to have it increase.

Q. But if we only preserve the nest sites that are there today, we are not going to increase the population; would you not agree? We do not have your other six gun with non-game species; is that not fair?

A. Well, that's right because -- yes, we don't harvest them. That's right.

Q. How long would it take a stand to be harvested -- that has been harvested to return to suitable red-shouldered habitat?

A. Well, in most cases not very long at all under the selection system which is current in the Great Lakes/St. Lawrence Forest.

Q. And if we were in the boreal forest?

A. Well, I don't know because -- I don't know. The red-shouldered hawk range doesn't go very much into the boreal forest, just a little bit.

Q. So you would agree with me then that to implement the sustainable -- or the viable population objective a long detection time is involved,

remedial actions can often take an extended time let alone the time that a bureacracy like MNR takes to process the action?

A. That is possible. Yes, that can happen.

Q. Would you not also agree with me that much damage perhaps even irreversible damage would be done between the time that the action starts and appropriate action can be taken to remedy it?

A. See, I can't deny the truth of your statement, not at all.

Q. Thank you. Can we move on to another subject and that is one of incremental impacts. Are you familiar with the concept of incremental impacts?

A. Yes.

Q. I spoke at length with Mr. Hynard about the matter of residual unmerchantable trees; do you recall that?

A. Yes.

Q. And I believe in his evidence he indicated that if a biologist asked for residual trees to be left they would be accomodated, no trouble. Is this your experience?

No, not Mr. Hynard's experience, Dr. Euler's experience.

MR. HYNARD: A. I just want to make sure that it's a correct quote.

Q. Oh, sure. I can give you the quote. It's from --

A. And the correct context.

Q. Fine. It is on page 13002, lines 10 to 20. I don't have it right here, but...

MS. BLASTORAH: Can you tell us the volume.

MR. HANNA: I think it is 77 or 78. I can give you the -- well, you want the context.

MR. HYNARD: What was the page number, please?

MR. HANNA: 13002. I think actually the comment -- I don't have the full transcript here at the moment, Mr. Chairman. I can produce it if you will. It is later, I think. It is past actually 13002, it is part of that answer but I think it is later in that answer.

Oh in fact no, excuse me, Mr. Hynard, I actually have the line here, I'm sorry. It is line 18 to 20. I can read it:

"if he had those concerns, they can be built into prescriptions without any problem at all."

Those were your words.

MR. HYNARD: A. Yes, they could be.

Q. Thank you. Dr. Euler, is this your experience?

DR. EULER: A. Well, yes, as he has said it, sure.

Now -- but to expand upon that a little bit, I mean, nobody here on this table is going to say that the bio and the forester always have perfect agreement on problems as they develop. I mean, there are some very intense discussions and that's a normal part of the process and tradeoffs are made, but there is no doubt that these concerns can be built into the prescription without any problem at all.

And I think it is implied there that the biologist has to make a case and a good case and that the process has to be dealt with apprporiately.

Q. Would residual trees be of primary value to non-game species or game species?

A. Well, probably non-game mostly.

Q. Can you tell me the timber management plans that you are familiar with in the boreal forest where the requirement to have residual trees left standing for non-game species reasons have been included in the silvicultural groundrules?

A. Well, no, I haven't -- I just couldn't go and pick plans out.

Q. If you were given more time, would you be able to?

A. Well, I don't know that I could. We would have to find those plans and read them. It would be a big, big job. There are plans in all stages of preparation all over the place.

Q. Is it fair to say then that you are not familiar with one at the present time?

A. That does what?

Q. That in the silvicultural groundrules prescribes that residual trees should be left standing for non-game species.

A. Oh no, I am familiar with the one, thatLanark plan did that.

Q. I did not say in the Great Lakes/St. Lawrence Forest, I said in the boreal forest.

A. Oh. I am not familiar with any in the boreal forest at this time, that's right, mostly because I haven't looked at them.

MR. HYNARD: A. Well, if the biologist walked into my office and I was in the boreal forest and he said: Look, I would like some residual trees left in all your cut-overs, I mean, the things that we

would look at was the impact that would have on the forestry program and, secondly, the benefits that would give to the wildlife program.

If there was a shortage of residual trees, the kind of tree that he was looking for for the kind of creature that he was concerned about, if there was no shortage there would not be a value in keeping them, but there may be a great cost to the forestry program in preventing proper reforestation.

That's the kind of discussion that would occur. My statement was it could be accomodated, I think that was the word, and it could be. But that doesn't mean it necessarily will be because he walks into the office and says: Gee, I would like some residuals left. And that shouldn't leave the impression that a problem exists. It is like the woodpecker issue of the other day.

Q. We are going to come to the woodpecker issue, Mr. Hynard. Thank you.

MR. FREIDIN: Perhaps just for the record Mr. Hanna could perhaps describe what he means by residual or the witness means by residual, it may be more appropriate now than perhaps four for five days from now.

MR. HANNA: Sure.

MR. FREIDIN: Could you ask the question.

MR. HANNA: Oh, I hope so. I just wanted to -- who is the best on the panel to answer that question or clarify that for us?

DR. EULER: Do you want to do it, Peter? Well, I know what I mean by it but as a forester you may have just a little different view.

MR. HYNARD: Okay. Well, let's both of us go at it, sure

DR. EULER: Well, it's just any dead -- or any trees left standing after the cut.

MR. HYNARD: Dead or living?

DR. EULER: Well, either. I mean, it's residual in the sense it is left there. From the wildlife standpoint we're happy to see dead trees left because a woodpecker is going to go have a lunch there some day and eventually those trees that were alive after the cut will probably die and so then become a woodpecker lunch.

MR. HYNARD: Yeah. Yeah, those are trees that are -- I would say living trees that are left following a cut and I think there is -- inherent in that is the sense that those trees would normally be harvested or normally be removed to complete a silvicultural harvest system.

But that's not necessarily the case. For example, trees that are left behind following selection cutting, that is a residual stand. So let's call them living trees that are left following cutting.

MR. HANNA: Q. That's the biologist -- or the forester's definition, is that -- Mr. Hynard and Dr. Euler, includes the dead trees. Is that the difference between the two?

DR. EULER: A. It appears to be, yes.

MR. HYNARD: A. It looks like it.

Q. So if the biologist came into your office, Mr. Hynard, and said he wanted residual trees left, he would get something different than what he asked?

A. Well, no. He would be a little more specific than just say I would like some residual trees left really and, I mean, he would be talking about a particular concern, a particular creature with particular habitat needs, he wouldn't just waltz in and say I would like some more residuals.

Q. Thank you. Dr. Euler, perhaps you can tell us -- put yourself in the position of a district biologist walking into -- I don't know whether Mr. Hynard is appropriate because of his enlightened state, but perhaps some of the other foresters in the

Ministry --

THE CHAIRMAN: I hope you gentlemen on the panel realize...

MR. HYNARD: They can get a rough time when they walk into my office too, it depends what their request is.

MR. HANNA: Q. Well, imagine you walked into some forester's office, Dr. Euler, and you wanted to argue for residual standing trees on the basis of the viable population objective that you have behind you. Now, how would you go about that?

DR. EULER: A. Well, the first thing I would do is my homework and I would check the sources of information that were available to me to see what -- see what information I had about the species of concern. That would be the first step and I would appeal then to the forester on the basis of the species that was of a concern.

I would say: We have a problem in this district because we lack in general a certain type of habitat. I would say: Look, here is my management unit. In this management unit I only have one per cent dead trees and that really isn't enough to meet the needs of those species that need dead trees.

And then I would say: Could we please

get some more dead trees here and here and here and here, or could you please leave some residuals because I don't have enough. That would be the general tenure of my argument.

Q. And what happens when Mr. Hynard comes back to you and says: We have got lots of snags just over the other hill?

A. I would say: Show me. Let's talk about it, let's get a map out and let's look at the unit we are talking about and let's determine together whether that is true or not. I might disagree with him.

THE CHAIRMAN: You might take a walk over the hill?

DR. EULER: We might take a walk over the hill, that's right. We wouldn't hold hands but we would take a walk over the hill.

MR. HYNARD: And if we didn't come to agreement, we have a district manager that we both work for and he is liable to walk over the hill with both of us.

MR. HANNA: Q. And only one would come back?

DR. EULER: A. Possibly so.

Q. How did The ministry come to the

conclusion, Mr. Hynard, that there was a shortage of den trees?

MR. HYNARD: A. Oh, I don't know that the Ministry has ever come to that conclusion. Certainly I never came to that conclusion.

Q. So perhaps you can explain to me then the rationale for taking the efforts that you have described in terms of preserving den trees?

A. Yes, I will be glad to. It didn't cost anything to identify those trees and keep them from being cut down. It didn't cost any dollars, it didn't cost anything in timber productivity because we kept only trees that were not in strong competition with saw timber crop trees.

So it didn't cost anything one way or the other, neither in dollars nor in timber productivity. There is a theoretical value, whether there is a practical value I'm not sure. But on the other hand, it didn't cost anything, so why not.

Q. So if it cost something you would have to go over the hill with the district manager; is that correct?

A. Well, I would have looked at it a lot more closely, there is no doubt about that. And I mentioned during cross-examination the other day with

you, Mr. Hanna, that had they been in an area that is being clearcut, where those trees -- let's say clearcut and site prepared and planted up, where those trees would have cost money to identify and protect and would have interfered with site preparation operations, I would have a different view.

I would then have wanted to be sure that there was an inadequate supply of den trees and this was affecting the viable population as Mr. Euler described. I mean, I don't believe we have an inadequate supply of den trees on my unit.

Q. Dr. Euler, you would agree with me though that this is a pretty difficult argument to put together convincingly, this argument of not a viable population. For a district biologist to walk into a forester's office and put that argument to a forester, it's a very difficult argument; would you agree?

DR. EULER: A. Well, no, I don't think it is particularly difficult. See, the problem of dead standing trees is not a big one currently in Ontario. We -- as near as we can tell, there is lots.

Q. No, that is not the question I am really putting to you. The question I am putting to you is this question of having to go in and say we haven't got a sustainable -- a viable population and on

that basis then to say we need certain habitat characteristics.

Seeing we've got all these different causes that come into play, the time horizons we are talking about, all the various difficult things that we have just gone over. It doesn't seem to me like a very easy argument to make.

A. Well, I guess I disagree with you. It is not a hard argument to make.

Q. Are you familiar with the recent publication by the Canadian Environmental Assessment Research Committee on environmental impart -- or excuse me, on incremental impacts?

A. No.

Q. Are you familiar with the recent World --

THE CHAIRMAN: Is that the Research Council?

MR. HANNA: I'm sorry, did I read that wrong.

THE CHAIRMAN: You said committee.

MR. HANNA: I'm sorry, it should be Council, Mr. Chairman. Thank you.

Q. You are familiar with the recent World Conservation Strategy entitled: Toward Our

Common Future?

A. Yes.

Q. Is not the issue of incremental impact one of the central themes in this report?

A. Well, I would have -- I don't remember that. It may well be, I just don't remember.

Q. The issue in incremental impact is one of knowing when you have gone too far?

A. Right.

Q. It is also the problem of having a narrow context; in other words, looking at one timber management unit and not knowing what is happening on all the other timber management units and what is being done there?

A. That's right. I am familiar with that.

Q. Giving a broad picture and trying to be able to decide when enough is enough?

A. Right. Yes.

Q. Is one way of dealing with incremental impact and indeed is it not one of the -- excuse me, I will retract that.

Is not one of the ways of dealing with incremental impact to set specific objectives over large areas; we get the whole picture and then

spacially disaggregating that overall objective so that you can deal with it at the site-specific level?

A. Oh yes, and that's exactly what we've done with moose.

Q. Would you agree that it is easier to monitor habitat than populations?

A. No. No, I think populations are easier to monitor than habitat.

Q. Would you agree that it is easier to monitor habitat than population stability?

A. Well, I don't know. I would have to think about that one a little bit. Probably just because it takes quite a while to measure the stability of the population. Probably, yes.

Q. So you would say to me then that it would take you much longer to take an FRI map and air photos and to make some assessment of moose habit at that time than it would to go out and count them?

A. Well, I think if you -- see, now you have used a different word here, take much longer. The first word that you used was easier.

Now, I hadn't spent any time thinking about the length of time. I think from the standpoint of a management agency it is easier in the overall context to go out and measure the moose population than

to measure components of its habitat given the current tools that we have.

Q. So it's easier to measure moose than it is trees?

A. Well, see, each time you ask me you change things a little bit and that changes my answer.

Q. That is fine.

A. Now, it may not necessarily be easier to measure moose than trees, but that is a different concept. First we were talking about habitat, and talking about moose habitat is different than talking about trees.

Now, I stay by my statement that I believe it is easier to measure moose population than moose habitat because you can get up there in an airplane and you can count them from the air and we have a fairly clear and fairly specific procedure for doing it. Most of our staff know what that is and they do it routinely, and it is a routine management activity with a fair degree of sophistication. People do it all over North American and people do it basically the same everywhere.

Q. Would you say that is true for all of the other 309 species that you have identified as vertebrates in the forest?

A. Well, no, not necessarily true for all 309. It will vary with the species.

Q. Would you say that the populations are more stable than the habitat?

A. Well, see, I just can't answer that with a generalization. Some populations of wildlife are less stable than the habitat, some are more.

Some of those warblers that attract budworm for example are up and down, up and down and that is quite normal and natural and you could describe that as not stable just because it is normal natural fluctuations.

Things like moose tend to be relatively more stable than that. I mean, it is really hard to generalize to a question like that.

Q. Well, if we were able to monitor habitat effectively and easier, less time however we define it, it would be a way to deal with the problems we have just gone through in terms of viable population, the interpretation of that information, the time lag?

A. Well, it would be very helpful, yes.

MR. HANNA: Mr. Chairman, I am going to enter into a new line of questioning, are we going to have another break this afternoon, or are we going to

tinue on?

THE CHAIRMAN: Why don't we take a short ak for about ten minutes and then we will continue until about five o'clock and break for the day.

I take it you are still on track ishing by tomorrow -- sorry, Wednesday.

MR. HANNA: Yes, Mr. Chairman.

Recess taken at 3:55 p.m.

On resuming at 4:15 p.m.

THE CHAIRMAN: Thank you. Be seated, ase.

MR. HANNA: Mr. Chairman, I would like to through with this witness the moose management delines. I am going to go through them in detail, I hope everyone has a copy of that because I am ng to be referring to it throughout this next line questioning.

Q. The moose management -- or excuse me, moose habitat guidelines have gone through somewhat an evolutin; is that right?

DR. EULER: A. Yes, they have.

Q. When was the first draft of the delines established?

A. Well, in early 1980 I believe. My t recollection is early 1980.

See, I am not sure of that, Ed, I am really not sure. I know I worked on these things over and over again for a long time and the very first draft I am not sure.

See, that couldn't be right because we had these approved in 1980. So the first draft was probably about five years before that, so the first draft was probably about 1975.

Q. Do you know what changes occurred since that original draft and the current version?

A. All kinds of changes, and I can't go through and point them out.

THE CHAIRMAN: I don't think it is that productive, Mr. Hanna, to go through all the changes in the development of guidelines such as this. I think what we are interested in primarily is the finished product.

MR. HANNA: That is exactly what I am going to deal with, Mr. Chairman. The only reason I raised that was simply that in my view they haven't changed, that there is a lot of information in the early ones that are very similar to what's in these ones and it was simply the context of the habitat we have today given the guidelines were developed in '75. That is the only reason.

I will be dealing though with these guidelines.

Q. How long have biologists in the Ministry been using the guidelines?

DR. EULER: A. Well, we have had various versions out certainly for a decade. Now, we got the official stamp of approval not until 1988 and that is because it takes a long time to write these and go through all the versions and get approval from various people, but these have been around in various forms for at least a decade.

Q. Can you explain to me then why it is only several weeks ago that the Ministry developed its training message, and I forget the terminology for the other material that was submitted recently, Exhibit 489 and 492. Why is that only recently?

A. Oh, it hasn't only recently. We have had training session with these for years. That is just the latest version of our training, but we have had courses in these every year for several years.

Q. So those directives are basically a reiteration of what is already in practice?

A. Those directives, what do you mean?

Q. Well, the training message, perhaps I am being too strong in the term. I believe Ms. Koven

was talking about, for example, the 130 being 260, that has sort have been a standard rule of practice for a number of years in the province; is that correct?

A. No, that is not correct. This latest effort that we introduced is something that has developed fairly recently. See, we have talked about this quite extensively where we have reduced the bounds of flexibility a bit because of some problems that we encountered in applying the moose habitat guidelines.

Q. You have been applying these guidelines for ten years or so and it has only been in the last couple of weeks that you have encountered these problems?

A. No, the problems we have -- we have been encountering the problems for the last couple of years, two to three years, and it's only in the last few weeks that we implemented a solution.

Q. Okay. Can we turn to the guidelines. I am going to be following through the green part of the guidelines.

A. Okay.

Q. I believe it starts at page (i).

A. Yes. Now, is the first step in applying the guidelines to establish a population objective for the timber management unit?

A. Well, yes, I think so. I think so, yes. I was just trying to think over in my mind what other things would you do first. I can't think of anything that you would do first.

Q. Okay. I would like to go through each one of the conditions. I am going to concentrate on the boreal forest, I don't want to get into the Great Lakes/St. Lawrence Forest.

A. Okay.

Q. I just really want to go through this more as an example rather than --

A. Yes, okay.

Q. There just isn't time here to go through these guidelines, all the other guidelines that the Board is faced with.

A. Yes.

Q. I would just like to go through this one and and see the problems -- or the potential problems you might have.

A. Right. Okay.

Q. Okay. The first condition indicates that the maximum edge-to-edge distance can't be more than four hundred metres; is that correct?

MR. FREIDIN: Where are you referring to?

MR. HANNA: Condition 1(a) boreal forest

page, P(i).

DR. EULER: Under general guidelines?

MR. HANNA: Under general guidelines, 1(a).

DR. EULER: A. Okay, yes.

Q. And it says that approximately 200 metres to suitable shelter. Would that not be the same as 400 metres edge-to-edge?

A. Yes right. Yes, that's correct.

Q. Now, is there discretion in terms of that distance?

A. Oh yes, very much so.

Q. How far can you go?

A. Well, there is -- okay. For the first decade of implementing these guidelines there was no number, we never said to our biologist: You may not go beyond this distance because we didn't want to shackle them with some kind of number that they had to adhere to no matter what.

We said to them the key is attaining your moose objectives, not the distance that a moose has to walk to find shelter. So you manage your unit to attain your objectives and what this describes is the best moose habitat.

Now, the Ministry has encountered the

fact that not everyone in the Ministry had a common understanding of this and some people were perhaps allowing deviations that were bigger than should have been allowed. So the Ministry more recently has put some bounds on that flexibility.

Q. Dr. Euler, in the interest of time, I really don't want to go back through all of the evidence and I have read your evidence and I appreciate what you have just told me, but I think the Board has heard that before and just if we can narrow our responses to the question.

A. Okay.

Q. So you are saying you can have cuts wider than 400 metres edge-to-edge?

A. No, I am not saying that. I am saying there is discretion. There is nothing here, there is no rule that says you can't. These are guidelines, general guidelines.

Q. I'm sorry, perhaps -- I said you can, not cannot.

A. Oh, I'm sorry I didn't understand that.

Q. I believe I said can. I meant to say can. If I didn't, I'm sorry.

a. Okay.

Q. So you can have cuts wider than 400 metres edge-to-edge?

A. Yes.

Q. Is there any limit how wide you can have a cut?

A. No.

Q. Is there any requirement for regional director's approval beyond some point?

A. Yes.

Q. What point is that?

A. Well --

Q. I don't want to interrupt you here, but I just wanted to make sure we are very specific. I am talking about the edge-to-edge distance.

A. Well, in this more recent training message that we put out as exhibit we have used the phrase two times the guidelines, okay. Now, that would refer to twice 130 hectares or presumably twice 200. So that would go to 400 and it is at that point that you bring in these approval of these higher authorities.

Q. Okay. Can we move then to the next paragraph under 1(b) there, and I believe the Board has heard that you can go up to 260 hectares; is that correct, without again director's approval?

A. Well, see, it isn't quite that simple. We have an exhibit on how that works over a certain portion of the area and we spent quite a bit of time talking about it. Should we talk about it again?

Q. No, I don't want to do that. I have actually looked at the exhibit. My understanding is that if it is less than 60 per cent -- I get confused here.

A. We should have the exhibit out to talk about it.

MR. HANNA: Well, maybe -- Mr. Chairman, maybe I can come back to that maybe tomorrow morning when we have the exhibit. It might be more efficient doing it that way.

THE CHAIRMAN: Okay.

DR. EULER: This is terribly difficult to deal with effectively.

MR. HANNA: Q. In that same clause there we have scattered patches of trees within cut-overs. Do you see that term?

DR. EULER: A. Scattered patches of trees. Where?

Q. In the second paragraph under 1(a).

A. 1(a).

Q. The first sentence.

A. "Potentially large clearcuts..."?

Q. No, I'm sorry. The first -- condition 1(a), this is the second column.

A. Yes.

Q. The sentence starts with:

"Clearcut in blocks..."

A. "Clearcut in blocks..." Yes.

Q. The last phrase is:

"...scattered patches of trees within cut-overs."

Can you see that?

A. "...and leave buffer zones between cuts and scattered patches of trees..." Yes, I see that.

Q. Are scattered patches of trees the same as shelter patches?

A. No, not in that setting.

Q. What constitutes scattered patches?

A. Well, that would be -- that's a very vague word that we would let the practitioner define. It's deliberately vague, because you see under those circumstances we are talking about cuts of 80 to 130 hectares, so it doesn't really matter that much.

Q. It doesn't matter that much?

A. Under those circumstances, yes.

If you are clearcutting in blocks of 80 to 130 hectares the scattered patches of trees that you leave within the cut-over is not a big issue, just do what you can where you can.

MR. MARTEL: Why do you need it then?

DR. EULER: Well, it's just -- you don't really need it. It's just kind of a guideline to say do it where you can, but don't worry too much about it if you can't.

MR. MARTEL: In essence you could leave it out?

DR. EULER: Oh sure, yeah. It's not a big deal. See, average cut size we believe is operational at about a hundred hectares. So if you have 112-acre clearcut and you can leave a little patch of trees somewhere, do it. If you can't, well don't worry about it. It is part of the tradeoff business.

MR. HANNA: Q. Is not the purpose of these guidelines to provide direction to biologists in making those tradeoffs and to reduce the conflict between foresters and biologists in those decisions?

DR. EULER: A. Well, no. The purpose of these guidelines is to describe good moose habitat and to tell the biologist what good moose habitat is. And then the tradeoffs and the discussions take place

within the context of the planning process.

So what we are saying here is: This is good moose habitat, this is the best moose habitat, here is what it would look like.

Q. So your biologists have got to be told what good moose habitat is, but when it comes to other species they already know it?

A. No, I wouldn't conclude that at all. This is a general guideline to help everyone understand what good moose habitat is. Now, what they know about other species is a different issue.

Q. Can we look at 1(c) and there is reference to buffer strips, I believe. I am just trying to find it here.

A. Do you mean travel corridors?

MR. FREIDIN: It is the second paragraph of 1(a) I think it says buffer zones.

MR. HANNA: Yes, thank you. Yeah. Actually my reference here got me confused. I was looking down at (c).

Q. I believe there is no definition of buffer zones. Can you direct me where in the guidelines there is a definition of buffer zones?

DR. EULER: A. No. As far as I know, no, there is no definition of buffer zone.

Q. So this is another thing that is left to the discretion of --

A. That's right. It is left to the discretion of the professional.

Q. And what would you think would be an adequate buffer zone, what sort of range?

A. Well, I would probably suggest that there may be circumstances where 25 or 30 metres is enough. There may be other circumstances that might require up to 100. It is very site-dependent and you just -- it is very hard to make a generalization that fits everywhere.

Q. Okay. Condition (c) provides a very detailed description in terms of -- in fact the most detailed in the whole of the guidelines in terms of the nature of shelter patches and what those should constitute.

A. Yes.

Q. Where are these numbers derived from?

A. John McNicol's Masters thesis.

Q. Now, condition (d) provides no quantitative direction; is that correct?

A. That's right.

Q. So in this particular example again it is left to the biologist's discretion to decide on

what is adequate--

A. That's correct.

Q. --semi-mature or mature conifer cover?

A. That's correct.

Q. And what direction are your biologists given in terms of making that determination of adequacy?

A. Well, in our courses where we talk about and educate people on how to use these guidelines, at that point we would talk about what mature conifer cover is and semi-mature and so on. So I mean, I am not sure what you want. Do you want me to say more than that?

Q. Well, that raises two questions.

MR. HANNA: Mr. Chairman, I realize this is potentially an interrogatory-type issue. I don't want to pursue this now, it is an inefficient use of time.

Is there a way to get that material and perhaps deal with it some time later in the future? Like, I am hearing the witness say: Well, we deal with that through this course material, whatever. I don't know if that's been produced and this seems quite important in terms of the directions that are given to

the biologists.

DR. EULER: Well, on page 70 of my evidence we did produce definitions for mature and immature.

MR. HANNA: Q. No, but it's not definitions I am looking at here, Dr. Euler. What I am looking at is the determination of adequate.

THE CHAIRMAN: Dr. Euler, is there a course outline by any chance for these training courses by way of index or course outline?

DR. EULER: I haven't seen one, Mr. Chairman. It may exist. At this point I just don't know.

I have in my room some visual aids that were used. Now, I don't know if they address adequate or not, I just don't know, and I am sure of one thing, that the course outline would not address the issue of adequate.

And further, if it would be helpful, you see, there are some other papers that would talk about how much winter shelter is needed and we would have -- from the scientific literature, we would have people who have measured and discussed how much is needed and in the course we would talk about that.

For example, there is a paper from

innesota that suggests 15 per cent of the managed reas should have mature forest in it.

THE CHAIRMAN: Well, short of Mr. Hanna aking the course, how would he learn what the course omprises, what is taught during the course.

I think what you are trying to find out s: How adequate, if I might use the term, is this nstruction?

MR. HANNA: What direction is given to ne bioligist to decide adequacy. Yes, sir.

DR. EULER: Well, it's a very difficult uestion to answer and I just don't know the answer at nis point in time and I doubt if there is a course utline anywhere that would answer that question. I oubt it very much.

THE CHAIRMAN: Well then, I think you ight have to be content, Mr. Hanna, with perhaps sking this witness -- have you been part of these ourses?

DR. EULER: I have lectured occasionally : them, yes.

THE CHAIRMAN: Are you aware of the ontent of these training courses?

DR. EULER: In general terms I am.

THE CHAIRMAN: Well, maybe you should

just ask him verbally certain things about the training course itself from this witness.

MR. HANNA: Thank you, Mr. Chairman.

Q. Dr. Euler, you have mentioned a paper in Minnesota about 15 per cent of the area in mature forest. Which paper is that?

A. Jim Peaks' paper, his Wildlife Monograph on Moose Range in Minnesota.

Q. I have a copy.

A. You have a copy. I don't have the exact date or exact title. But he described optimum moose habitat in that area just a few miles from Thunder Bay actually and it was around 15 per cent mature and he had a little different definition of mature but essentially that is what he meant.

Q. Now, is there a reason that the Ministry has seen fit not to include in condition (d) a direction like 15 per cent of the area in mature forest given it is discretionary?

A. Well, no not really. There is no major reason why it was left out. It's just -- the philosophy here is that we concentrate on attaining the objective, not so much on the tools that are used to reach the objective, you see, and this is a tool.

Q. I really don't want to go around that

merry-go-round again in terms of the objectives and what the objectives are and whatever.

I am simply saying: Here is a set of guidelines that are set that are supposedly telling biologists what good moose habitat is and you have just told me one element of good moose habitat in terms of this particular component.

I simply asked you, is there not value in putting that in these guidelines?

A. Well, no, there's no particular value in that. It's readily available, people know it, it's readily available in the scientific literature. There's no need to have it there.

Q. Okay. These general guidelines apply to the normal operating areas; is that correct?

A. Yes.

Q. Now, is it fair to say that having gone through there is only one of the four timber management activities mentioned?

A. I don't follow your question.

Q. Okay. I have looked at these four conditions -- or five conditions, excuse me, under the boreal forest and they seem to all pertain to harvesting. I see no reference to any other activity in the normal operating area. Is that correct?

A. I think it is. On page (i), yes.

Q. And page (i) deals with the normal operating area?

A. Yes. This is a summary remember, there is more detail later, this is just a summary.

Q. I appreciate that. If you want to refer me to the detail somewhere else, I am quite prepared to be referred.

A. Yes, you are right.

Q. So, therefore, I can conclude that there are no wildlife concerns with the other activities that such guidelines would be required in the normal operating areas?

A. No, you could not conclude that. That is not the conclusion that should be drawn.

Q. Well, perhaps I would ask you this question then: Why do we not have general guidelines that deal with, for example, regeneration, or deal with - excuse me, the word is renewal I think we are using here - but access?

A. Well, it isn't that we haven't dealt with them on page (ii), for example.

Q. No, no. I am trying to deal with normal operating areas here, not areas of concern.

A. Well, areas of concern are part of

the normal operating areas I would say, or part of normal timber management.

MR. HANNA: Mr. Chairman, we better get these terms straight or we are going to go array here.

Q. Dr. Euler, my understanding is that you have got normal operating areas and areas of concern and that those are quite distinct? Are you saying they aren't?

A. Okay. Okay. Well, no, I'll live with that if that's the context you're using them in. I just thought you were referring in a more general sense to normal timber operations.

Q. I have a tendency sometimes to be general as you've drawn to my attention, but I was trying to be specific in that case.

A. Okay. All right. So, let's get back to your question.

Q. My question simply is: There is no reference in the general guidelines which apply to the normal operating area to any of the other timber management activities other than harvesting?

A. That's right.

Q. And, therefore, as far as moose are concerned, there are no concerns or no requirements in terms of moose for the other activities in the normal

operating areas?

A. I wouldn't conclude that. I mean -- no, I don't think that's a proper conclusion.

Q. Would it be fair then to conclude there's no guidelines for those concerns?

A. There may not be any guidelines for it, sure.

Q. Thank you. Can we move on to the area of concern guidelines. Now, condition 1(a) deals with access routes or access roads, excuse me.

A. Yes.

Q. Now, there is no quantitative direction there?

A. That's right.

Q. What constitutes a voiding?

A. Well, that's left up to the professional to decide.

Q. And what basis does the Ministry give for biologists to make those decisions?

A. Nothing. That's within their purview as professionals working in this area. They should be able to decide that themselves.

Q. How would you decide it, Dr. Euler, if you were a district biologist?

A. Well, see, I can't tell you exactly

how I would decide it because it's so site-specific. There may be cases where I would say to the forester: Would you please run that road one mile away from this aquatic feeding area because of the overall situation.

Other times I might say: Well, if you just go on the bottom of this hill 50 metres away it will be adequate.

I mean, there is no way that I can give you a general answer to that question because it's so site-specific and that's why you can't put in here some very specific rule.

Q. In condition 1(b) can you tell me what special circumstances are contemplated there?

A. Well, there would be a variety of them. It might be an area, for example, where the moose population has been temporarily depleted for some reason. It could be that decisions have had to be made to consider more the needs of the timber extraction than the needs of moose. There may be others.

Q. Is there a list of these special circumstances a biologist could take into account?

A. No, no. No, there is no list.

Q. Condition 2(a). Does this not imply that the same conditions for the normal operating areas should apply to winter concentration areas?

A. Yes.

Q. Now, 2(b). How is 2(b) different from what is in the general guidelines in Section 1 -- on page (i), excuse me?

A. How is 2(b) different from what, all of 1?

Q. I am trying to understand what further direction 2(b) gives to biologists in applying the guidelines.

A. Further than...?

Q. Well, we have already said 2(a) is basically just saying use the general guidelines; is that not right?

A. Yes.

Q. I am trying to find out what is the difference between 2(b) and what is permitted under the general guidelines?

A. What is the difference between 2(b) and what is permitted under the general guidelines. Well, I don't think there is much difference. I don't see any difference.

Q. So it is fair to say then 2(a) and 2(b) are basically, if you will, redundant in a sense; they provide no further restriction?

A. No, no further restriction, but you

see the point of 2(b) is to say that there may be certain circumstances where you may want to do some selection harvesting of large conifers. That is all it adds, it is more for the timber extraction side of it in these areas of concern.

See, if you make a winter concentration area of concern then it's dealt with a little differently in the timber management planning process and so this just gives a bit of guidance and say: Well, you may -- in some circumstances in early winter concentration habitat you may want to do some selective harvesting to make it actually a little better early winter concentration habitat than it was before, because early winter concentration habitat doesn't need as much mature conifer.

Q. Now, looking at 2(d) or excuse me 1(d).

A. Under...?

Q. I'm sorry, on page (ii).

A. (ii), yeah.

Q. Is that not, the cut restriction, exactly the same as what is in the general guidelines except for the return cut?

A. I'm sorry, I just don't follow you.

Q. It is very easy. We have here:

"Cut should not exceed 400 metres in width."

Is that not the same as there shouldn't be approximately 200 metres from suitable shelter?

A. Yes.

Q. So that is not a new restriction?

A. No, I don't think so.

Q. So the restriction in 1 -- excuse me, I'm confused here - in 2(d) is basically identical to what is in the general guidelines?

A. "In late winter concentration..."

MR. FREIDIN: Are you referring to the one sentence, the fact that there is 400 metres, or are you talking about the whole paragraph? What are you talking about?

MR. HANNA: That's fair, Mr. Freidin. I should be specific.

Q. What I am referring to is the first paragraph. I am going to deal with the next sentence, but I was speaking specifically to the first sentence in terms of the width of the cut.

DR. EULER: A. Under 2(d). So:

"In late winter concentration areas cut should not exceed 400 metres in width."

Okay, that's late winter concentration

areas. Okay. So how are you comparing that back here then?

Q. Well, if I look at 1(a)

A. Yeah.

Q. It says I should have my cut-overs basically no wider than 400 metres. Is that not correct?

A. It says they should -- yes.

Q. Well, those sound like the same thing to me.

A. Yes, they are, they are very close.

Q. Not only are they close, they are the same.

A. Yes, that's right.

THE CHAIRMAN: Well, let's approach it this way. Dr. Euler, is the intent of these guidelines, structured the way they are between the general guidelines and the areas of concern guidelines--

DR. EULER: Yes.

THE CHAIRMAN: --did you structure them that when you are looking at areas of concern they may also include the same provisions that were for the general guidelines?

DR. EULER: Yes, mm-hmm. And then we

tried to expand on it just a little bit.

THE CHAIRMAN: And you may expand on it where necessary?

DR. EULER: Yeah. Yes, that's right.

THE CHAIRMAN: But you didn't necessarily try to leave out of the specific areas of concern guidelines things that were covered in the general guidelines?

DR. EULER: No, no.

THE CHAIRMAN: You look at these two distinct set of guidelines depending on whether or not it's an area of concern you are dealing with?

DR. EULER: Yeah, or the other kind of area.

THE CHAIRMAN: Or the other kinds of area?

DR. EULER: Yeah. That's right, yeah.

THE CHAIRMAN: You just apply this column for instance on page 2 of the green sheets if it is an area of concern?

DR. EULER: Yeah, yeah. And there --

THE CHAIRMAN: You also include a reference back to the general guideline such as it does in 2(a).

DR. EULER: Mm-hmm, sure. Yeah it may do

that.

THE CHAIRMAN: So I don't know if that helps you from going through them one by one and say which -- you know, what do you compare it with.

MR. HANNA: Really it's just a matter of just seeing specifically what has to be done in area of concern different than what has to be done in a normal operating area.

Q. And if I could summarize then, in 2 -- well at least 2(a), (b), (c), (d) the only difference between that and the general guideline is the timing of the return cut; is that correct?

You did write these, Dr. Euler?

DR. EULER: A. Indeed I did and it's just I am having an awful lot of trouble understanding your questions. And, see, you say is there any difference. Well, to answer that properly I should read the whole thing and just check and see if there is any difference.

THE CHAIRMAN: All right. Why don't we do this, why don't you read it overnight--

DR. EULER: Okay.

THE CHAIRMAN: --carefully.

DR. EULER: It is well written, I think.

MR. MARTEL: Be easy to read then.

DR. EULER: I will read it with pleasure.

THE CHAIRMAN: And unlike the Dean Baskerville type of question we will ask you what you meant tomorrow--

DR. EULER: All right.

THE CHAIRMAN: --in terms of the differences between the two sections.

DR. EULER: Well then, would it be fair to ask what the questions are so when I read it I will be prepared to answer them.

THE CHAIRMAN: Okay. I think what Mr. Hanna wants are: What are the differences in terms of the guidelines.

DR. EULER: What are the differences. Okay.

THE CHAIRMAN: Between the general guidelines and the areas of concern guidelines.

DR. EULER: Okay.

THE CHAIRMAN: What additional protection or other items are covered by the area of concern guidelines that are not covered in the general guidelines. Would that be fair?

MR. HANNA: That would be excellent, Mr. Chairman.

MR. MARTEL: Would that include how do

you treat the area of concern differently from the general area?

MR. HANNA: Certainly, Mr. Martel, if there is a different interpretation for the areas of concern, I would be interested in hearing that also. I don't see it in the guidelines, but I should be interested in hearing it.

THE CHAIRMAN: Well, we don't want to go through the whole difference in the whole planning process at this stage as to how areas of concern are handled. We are just looking at the differences I think in the wording of these two sections.

MR. FREIDIN: Dr. Euler, could you perhaps read back what you think the question is.

DR. EULER: What are the differences between the general guidelines and the area of concern guidelines.

MR. FREIDIN: Now, is there anything else?

MR. MARTEL: Well, the only reason I threw that in is to try to point out if there is a difference, could you point out the difference between --

DR. EULER: Between the two?

MR. MARTEL: Right.

DR. EULER: Yes.

MR. HANNA: Mr. Martel, just to clarify. What you are suggesting is that perhaps they might be interpreted more rigorously in the area of concern?

MR. MARTEL: Possibility. Until I hear what -- I mean, what you are saying is they have both been written down and they both essentially say the same thing. Well, why do you need both of them, is what you are leading to?

DR. EULER: Is that what you are leading to?

MR. HANNA: Well, that is obviously a concern, yes.

DR. EULER: Okay. So then the question might be: Why did you need both?

THE CHAIRMAN: Well, as I understood from my question to you just a few minutes ago, if you are dealing with an area of concern you go to that section of the guidelines and deal with it.

DR. EULER: Yes.

THE CHAIRMAN: And if you are not dealing with an area of concern, you go to the general guidelines?

DR. EULER: Right. Yeah.

THE CHAIRMAN: That is the way these have

have been structured?

DR. EULER: Yes.

THE CHAIRMAN: Okay. Now, there may be no difference with respect to some provisions--

DR. EULER: Right.

THE CHAIRMAN: --in the area of concern part of the guidelines over the general guidelines, but it is repeated nonetheless because this should be the only section you have to go to if you are dealing with an area of concern?

DR. EULER: Yeah, sure.

THE CHAIRMAN: Yes, that is the way I understood it.

MR. HANNA: Exactly, Mr. Chairman. What I want to get clarified through the witness is basically we are talking about harvesting here. Is the harvesting going to be different in an area of concern as opposed to a normal operating area.

DR. EULER: Okay. Well, that is fairly easy. It very often will be, but not always.

THE CHAIRMAN: Well, I think what we want you to do is address it in terms of what is written down here.

DR. EULER: Okay.

THE CHAIRMAN: Okay.

DR. EULER: I will have a report.

MR. HANNA: Q. All right. There is a couple of more questions here that I would just like to ask you that are not comparative type questions like that to get things clarified.

Do late winter areas -- do late winter concentration areas have a life expectancy?

DR. EULER: A. Yes.

Q. Well, the obvious question I guess next: How long do they live?

A. Well, it depends on the circumstances that they are in. We have done some studies of that in some parts of the province and it depends on the species that is there. For example, if it turns out to be a spruce/fir forest, they tend to recycle on the order of 100 to 150 years.

Some -- if there are areas where pine are the winter shelter, it tends to be a little bit longer.

Q. Yeah. We don't have pine though in the boreal forest.

A. Well, a few -- a little bit, but not very much. It is -- mostly winter shelter areas are spruce/fir and as a generalization the life expectancy is something on the order of 100 to 150 years depending on the fire rotation and so on.

Q. Fine. But presuming that there is no catastrophy like disease or fire, if we preserve a late winter concentration area today we are going to have one in 100 to 150 years?

A. I think that would be very unlikely because the things happen in that forest. I mean fires happen, disease happens, wind storms happen.

Q. No, no, I appreciate there are the other factors we have to deal with and we will be coming to those, but I am saying: Withstanding those, put those aside and say we just preserve this area, how long do we have -- how long is that site going to be operative in terms of late winter concentration area?

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MR. FREIDIN: Why do you want to ignore reality throughout so many of these questions? I don't see how it's helping. I know you can put hypothetical questions, but all afternoon.

THE CHAIRMAN: Well, I don't think that is quite fair either, Mr. Freidin. But I think, Mr. Hanna, you can put it to the witness: In his experience, how long will awinter concentration area last and his experience may take into account some of these other factors.

If we want your judgment on the matter, I

think we have got to allow you to put into that judgment the factors that you think are necessary.

MR. HANNA: Sure, I agree.

DR. EULER: Okay.

THE CHAIRMAN: So if you have a late winter concentration area, how long do you feel it will last in that form on average for instance across the boreal forest?

DR. EULER: From the time you designate it as late winter?

THE CHAIRMAN: (nodding affirmatively)

DR. EULER: Well, probably 30 to 50 years.

MR. HANNA: Q. That is including your fire and your disease and all the other things that we have to take into consideration?

A. Yeah. And also -- see, it also depends on when in its life cycle it gets identified because if it were say an 80-year stand that was identified as a winter concentration area, then it's going to last maybe a little longer. If it isn't identified until it is 120, then it's going to last a little less.

Q. 40 years less?

A. Yeah.

Q. So it could last as little as ten years then?

A. Oh sure.

Q. All right. Now, does the requirement that we have here - we are talking about 2(d) - does this requirement apply to existing late winter concentration areas or potential late winter concentration areas?

A. Existing, areas that are known to be winter concentration areas.

Q. If the moose population was to increase, would you expect the number of late winter concentration areas to increase?

A. Probably.

Q. Condition 2(e). There is a word there that I am sure this Board has seen before and perhaps sometimes might not want to have seen and that is the need to maintain its integrity and safe access.

How would I go about deciding on need in that circumstance?

A. Well, in this case you would have to look at the species of trees that were there, the site they were growing on, the topography of the surrounding area, the probability of factors such as disease or fire, time since last disturbance, age.

You would have to look at all of those factors and make a judgment about how long you think that that particular reserve might be there and then you would draw your line around it and define it and suggest what you think the shape should be and the size and so on.

Q. Now, this condition is somewhat different than the other conditions we have had to deal with where we have had need for this flexibility and yet we have also provided a quantitative, if you will, direction to the biologists.

A. A guide. Yes, in this case we have provided a guide and in the other cases we didn't.

Q. Condition 3 we are talking here about the potential impacts of site preparation, regeneration and maintenance. Now, how does a biologist -- what tools does a biologist have to evaluate these activities--

A. Well --

Q. --in terms of the quality and quantity of the moose habitat?

A. Well, his best tool is his forester friend that he can talk to. He can say: What are you going to actually do when you site prepare. What are you actually going to do when you do maintenance. Tell

me what the result is likely to be.

And then once you have told me that, then I will evaluate its impact on the quantity and quality of moose habitat.

Q. It was the latter part that I was particularly interested in. I am happy to hear that you are talking to your foresters and working together.

What I am interested in is how does the biologist go about deciding on the quantity and quality of moose habitat? believe in earlier questions you said quality of habitat is a very difficult thing to deal with, as is quantity.

A. Well, we have a whole guideline here that tells him how to do that. We described what good moose habitat is and we have described how many moose good habitat should support.

Q. So what you are telling me then is it is easy to go out and decide on what is quanity and quality of moose habitat?

A. No, I am not saying it is easy, that was not in my answer. I didn't discuss the ease or difficulty of doing it. I am just saying, that is what he does.

Q. But you can do it?

A. Absolutely. Sometimes it is rather

difficult and sometimes it is rather easy.

THE CHAIRMAN: We are getting to that time, Mr. Hanna.

MR. HANNA: Yes, I know, Mr. Chairman. I won't be able to finish these questions.

THE CHAIRMAN: Okay. I think we will reconvene tomorrow at nine.

---Whereupon the hearing adjourned at 5:05 p.m., to be reconvened on Tuesday, April 25th, 1989, commencing at 9:00 a.m.